

POULTRY
for PRIZES and
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POULTRY

FOR PRIZES AND PROFIT.



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POULTRY

FOR PRIZES AND PROFIT

BEING

PRACTICAL DETAILS FOR THE BREEDING, MANAGEMENT
AND EXHIBITION OF DOMESTIC FOWLS

BY

JAMES LONG

PROFESSOR OF PRACTICAL DAIRY FARMING AT THE ROYAL AGRICULTURAL COLLEGE
AUTHOR OF 'BRITISH DAIRY FARMING' 'THE BOOK OF THE PIG'
'FARMING IN A SMALL WAY'

Illustrated

IN THREE DIVISIONS

- I.—BREEDING POULTRY FOR PRIZES
- II.—EXHIBITION POULTRY
- III.—MANAGEMENT OF THE POULTRY YARD

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PREFACE.



THE first edition of this work was published fifteen years ago, when I was in the thick of the fight as an amateur breeder and exhibitor. I have since that period had the advantage of an unusually large experience in these two capacities, to which I may add those of critic and judge. This experience has extended to several European countries, for in the pursuit of other studies I have had such advantages of examining the poultry question abroad under all its aspects as have seldom or never fallen to the lot of one individual. In these pages I have endeavoured to give the results of this experience. There are no theories, nor is there any advice which needs qualification. The work is plain and descriptive, and I am sure it is practical. A person who during a long series of years breeds thousands of birds, among them many specimens of every well-known breed, who has won thousands of prizes, who has been engaged as critic at every one of the principal exhibitions during the whole of this period, who has frequently acted as judge in the three kingdoms, and who, moreover, has become practically acquainted with the chief poultry systems of Europe, would indeed be a dunce if he had

not made common observations and had nothing to tell. There are other modern books in existence, but they are mainly compilations—certainly not the fruits of personal experience, inasmuch as the writers in no case possess either one of the qualifications to which I have above referred. The qualifications of an author are too often judged less by his actual experience than by the size of his book ; and if this were not the case, I should certainly be unable to remind the reader that this is not the only work on Poultry. To the fancier I, as an old hand, know the descriptive matter will be found useful ; and to the breeder for profit who has no fancy for the exhibition system I can confidently recommend the pages upon breeding and management.

JAMES LONG.

GRAVELEY MANOR, STEVENAGE.

POULTRY FOR PRIZES AND PROFIT.



BREEDING POULTRY FOR PRIZES.

CHAPTER I.

COCHINS.

IN breeding the Cochin China fowl, or, as it is now more generally known amongst fanciers, the Cochin, the chief points—indeed, in the minds of some breeders of eminence, the only points—are size, colour, form, and feather. These certainly carry the greatest possible weight, and, unless they are one and all present in a high degree of excellence, it is quite impossible for a specimen to obtain a foremost position in the show-pen. At the same time, it should not be forgotten that there are minor points, which some of the judges consider of almost equal importance; and they frequently go so far as to pass, without notice of any kind, a bird which, but for a faulty comb or an imperfectly coloured eye, is of the highest possible excellence. It will thus be seen, that, in order to obtain complete success, it is necessary to produce the minor points to perfection, as well as those of greater importance. The comb of the Cochin should be medium in size and symmetrical in form, especially so as this is one of the first points to catch the eye of the judge. In the same way, the eyes should be of the correct colour, both matching,

which they sometimes do not, and frequently disqualify and spoil the *tout ensemble* of otherwise high-class specimens. In dealing with the question of form, it is not only necessary that a bird should be of the true Cochin type, and its excellence in this respect well developed, but there should be an absence of flat sides, narrow loins, and badly-formed legs, such as those in which the hocks almost meet, and which may be compared to bandy legs. With regard to colour, it is not sufficient that the white bird should be white, but it should be of the most brilliant tint, without a shade of creaminess or colour of any kind, this having been one of the great faults of the white Cochin ever since it has been exhibited as a breed. The same remark, in a less degree, applies to the buffs, in which the colour should be clear, bright, and at the same time soft and uniform throughout, a harsh, crude, or a washy colour being at all times disagreeable to the eye. There are two or three tints of buff which are acknowledged, and which may be exhibited with success, but each must be perfect in itself, and quite free from mottling or want of solidity—a fault which is too common. The colour in the partridge is of a more varied nature, but it is nevertheless essential that it should be perfect. The black breast, thighs, and under parts must not only be unspotted, but covered with a brilliant green sheen. Patches of colour on the thigh and throat are common faults in this variety. The colour and marking of the upper parts must, of course, be as perfect as possible, and it will only be by attending exhibitions, and becoming accustomed to the most approved shades of golden feathering, that the breeder will thoroughly appreciate that which is most preferred by judges. In the black Cochin, a variety which has largely deteriorated since the introduction of the Langshan, the colour should be an absolutely green-black. In Cochins of all kinds, size is of pre-eminent importance, a small bird being worthless, while a giant is almost

equally worthless if he is deficient in form, colour, or feather.

The last point of great importance is that of feather, and it is one in which the Cochin excels every other known variety of fowl. The short legs should be abundantly furnished as far as the tips of the toes. The thigh should be covered with soft down, in a much larger degree than is found in any other variety; and the more abundant this is, if the other portions of the body are approximately covered, the more the bird is appreciated, both for stock and exhibition purposes. The cushion, however, is the most important point in connection with feather, and the breeder should strive to get this as large as possible, the point of breadth being most appreciated, especially when the feather laps over, and entirely covers, the tips of the wings, which the judges like to see buried between the fluff of the thigh and the feather of the cushion.

Bufs are the favourite colour in Cochins—they are exhibited in greater numbers and in better quality than the other varieties; but perhaps the fact that buffs, lemon-buffs, cinnamons, and silver-cinnamons are included under the one head, permitting a great choice in colour, is a sufficient explanation why they are so popular. Lemon is the favourite colour with some amateurs, and, from its great beauty, we are not surprised. To attain this shade of the 'buff' we advise breeding from distinct hens. Put a good, rich, even lemon cock with lemon hens the colour of the desired chicken for cockerels; and a golden-buff cockerel with bright, even, perfect lemon hens, such as are sometimes seen in cup pens at Birmingham, will throw beautiful pullets. It is very difficult to obtain good lemons from the same parents. Though we have bred some as exquisite in shade as could be desired from a dark lemon cock and a very perfect cup lemon hen, it should be mentioned that the majority of the cockerel chickens

were silver-cinnamons. In the cock there is a tendency to the obnoxious light shoulder and flights, whereas good bright pullets often have dark hackles—these moult into silvers. For buffs, mate a golden lemon cock with dark buff hens, clear, soft, and even in colour throughout, as any mottling is fatal. For silver-cinnamons, put a lemon cock with hens silver-buff in colour, excepting the hackle, which should be of a rather light brown. These hens are of a faint washy shade, but must not be too light. Buffs generally breed lighter buffs than themselves, and moult lighter every season. In mating for colour, it is as well to look to the hen as to the cock; if you cannot get good points in the cock, remedy them, if possible, in the hen. The cock has more influence in throwing good-combed birds and handsome heads; but in size, shape, and feather, look most to the hen.

Partridge.—In selecting breeding stock, colour and marking are generally the first points demanded, as these are absolute qualifications—therefore, discard cocks without black thighs, breasts, and tail, which are badly striped in saddle or hackle, or light in colour. The best cock for stock purposes is one which is black in the breast, thigh, and tail, with a deep golden hackle and saddle, and very darkly and sharply striped; dark red back, and bright, well-defined bar on the wing. He need not necessarily be a big bird if he is finely formed, and, especially, broad in the saddle, which should gently rise into a short, well-formed tail. The hen should be well-feathered to the ends of the toes, large in frame, with a cushion which falls over the wing ends and rises gradually towards the tip of the tail, a neat head, and a comb as small as possible; her hackle should be clearly striped with black on a golden ground, and the body, even to the fluff of the thigh, distinctly pencilled with a very dark brown on a much lighter ground. The handsomest cockerels we ever saw were bred from parents such as we have described. Although not really large birds,

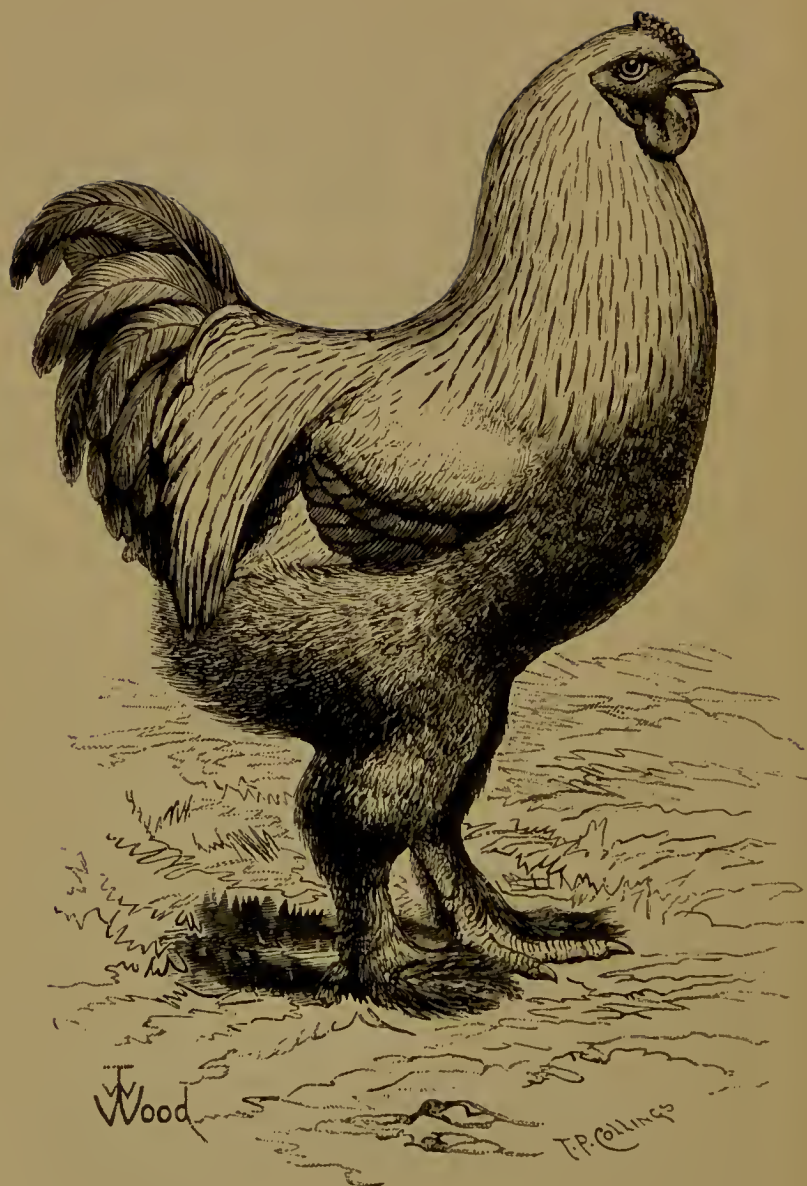
they were elegant in form and perfect in colour, and, as a consequence, they frequently beat celebrated birds, which were much their superiors in size, but equal in colour, and inferior in shape. The pullets of the same broods, although rich in colour and exquisite in pencilling, were not reared for size, and never showed their fine shape to advantage.

White Cochins are, in our opinion, the most chaste as well as the handsomest of the breed—that is, if they can be kept white, and run on grass; but kept in a town, or in a dirty yard, without a blade of grass, buff *must* beat them. There were, however, at one time, birds of this variety which were kept on a few feet of bare earth, which won very many first prizes, and which beat the coloured Cochins over and over again; but they were the favourites of experienced exhibitors, and when ready for the show-pen looked more fit for a glass case. Good white Cochins could at one time be claimed at shows at a low price, but they are now seldom seen. The cock should be equal in shape to those already described; but it is very necessary that he should be absolutely *white*, without even a tinge of yellow (which is very objectionable, though very common). In white Cochins the shape of the comb is of more importance than in buff or partridge: it should be particularly even, well-serrated, fine in texture, slightly arched, and of medium size. Vulture-hocked, and white or green-legged cocks are common; the latter should be avoided, but the hock is sometimes useful for breeding heavy feather. We have bred some of the heaviest-feathered pullets we ever saw from a cock with abnormal hocks; and in another case a most successful result was attained by using a three-year-old cock (he was first at Birmingham about the year 1868), perfect in feather, comb, and shape—indeed, one of the grandest specimens ever seen—and a heavily hocked two-year-old hen, moderately large, of capital shape, and very white. Hens of good size and feather

can sometimes be purchased for little money ; but many of them are objectionable in colour, and never find favour with judges. These birds have a reddish or yellowish tinge throughout the body, and sometimes the appearance of birds which run on red or sandy soil ; they neither win prizes nor breed good chicken, and should be instantly discarded. We hope that white Cochins will be more generally bred and exhibited. Almost all the old breeders have left the fancy, or given them up—but why we cannot divine—and others have not filled their places. Mr. Darby is almost the only exhibitor who has maintained a high quality of late years, and without his yard the variety would scarcely be worthy of the name.

Black Cochins are now rarely met with, although for some years prior to the rage for the Langshan they were both good and popular. Why so many breeders and exhibitors should so suddenly abandon them has always been a mystery, but that they declined in one short season, and have never recovered their position, is perfectly true. There is no reason why the black Cochin should not, with proper attention, become as perfect as the other varieties ; but now that the breed has been brought so low, this would needs be a matter of time. To breed black Cochins successfully, all the characteristics of the other varieties must be retained, substituting, however, a pure, unbroken, green-black. There was at one time a great tendency to throw brassy-winged chickens in the very best yards ; and it is only by mating stock of the purest blood, and combining perseverance with a great deal of patience, that good blacks can be obtained.





DARK BRAHMA COCKEREL.

CHAPTER II.

BRAHMAS.

Dark.—The difficulties met with in the selection of dark Brahmas for breeding purposes are, perhaps, more numerous than in any other variety. It is essential to success to produce pullets of good colour and distinct pencilling, but the great difficulty of ascertaining the strain and blood of the cock makes this task by no means easy. In establishing a strain, it is well to select a sufficient number of birds, to prevent the necessity of subsequent purchases, and, perhaps, the consequent importation of bad blood. Three breeding pens are sufficient to continue without a cross for years, as the strong constitution of the Brahma renders a cross of related birds by no means objectionable if not continued.

For the breeding pen early-hatched, hardy cockerels, or cocks of two years—not necessarily large—should be chosen; the breeder should see that they have symmetrical, first-rate combs, red earlobes, fine, handsome heads, full hackles, yellow legs, and, if possible, broad, even, unbroken tails, which are entirely free from white.

Colour is a point that depends upon the taste of the breeder; but should he select the silver—really the proper colour—the cock must have a black breast and thighs, the hackle and saddle being densely striped with green-black upon a clear silver ground. Brown feathers and purple lustre on the black feathering should be avoided, as they are fatal to the production of pure colouring, and a bird possessing these

faults would, if crossed upon a pure silver, entirely destroy every prospect of success.

The hen should, above all things, be massive, well-feathered, pure in colour—a rare quality in an old hen—and finely pencilled. The ground colour should be pure silver, and the grey marking upon it absolutely free from brown.

If, in purchasing a bird, the seller is unable to furnish



Breast Feather of Dark Brahma.



Wing Feather of Dark Brahma.

any information as to the qualities of its parents and race, it is well to trace the immediate ancestors, and, as far as possible, ascertain their colour and principal characteristics.

For obtaining size large hens are preferable to large cocks; if the former are broad, deep, heavily feathered in thigh, with full rising cushion, the cock may even be small, but his build should be of the true type, conveying the idea of 'much in little.'

He should, moreover, be very broad across the saddle, and

deep in body. The lines from the head to the tail should be a succession of graceful curves. To produce chickens of the most exquisite and approved shape, the cock to mate with a perfect hen should be gracefully curved in the neck, very short in the back, the saddle rising into an almost erect tail.

Any defect in one bird may be counterbalanced by particular excellence in that point in the other, bearing in mind that the cock's influence is greater in 'fancy points,' and the hen's in size and shape. Long-bodied, duck-shaped hens are useless for breeding; but if finely-shaped cocks are mated with good all-round hens, they will throw symmetrical pullets; and, on the other hand, badly pencilled but stylish hens, if mated wisely, will throw good cockerels.

As early fledging is very desirable in all large birds, two-year-old cocks, and hens of the same age, will be found preferable to any others, although a yearling cock with an older hen is a capital match.

We are indebted to Mr. Norris-Elye for the feathers illustrated.

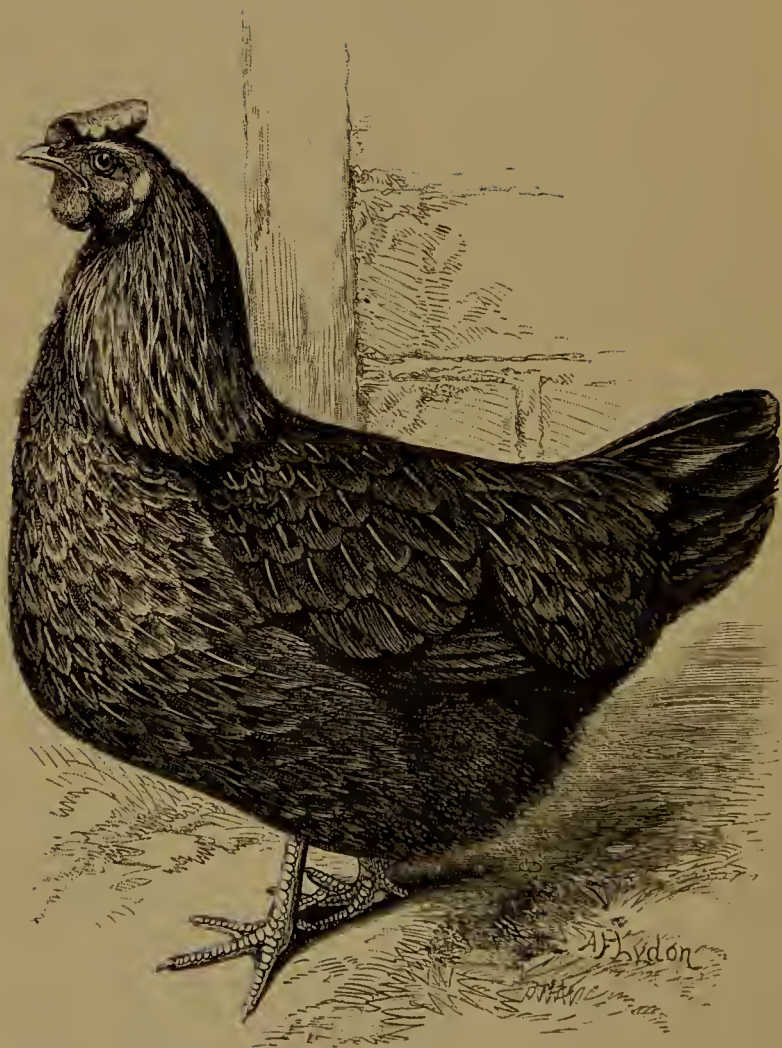
Light.—The remarks referring to dark Brahmas, so far as relates to shape, size, comb, and feathering, may be confidently applied to the light variety; but with regard to colour and pencilling it is necessary to say a few words. Pencilling, as every fancier knows, is now brought to such perfection that it *must* be obtained to ensure the least success.



Saddle Feather of Light Brahma Cock.

Clouded or spotted hackled birds are useless, and yellow birds, although at one time quite fashionable, must be avoided, unless a strain is to be ruined. We like to see a fine, sharp stripe in the saddle—a point almost lost sight of, but which may generally be obtained by breeding from very dark birds. We also admire the white lacing in the tail of the hen, now often seen in a high degree of perfection; it is invariably obtained from cocks having similar lacing in the tail coverts. We must refer to the *whiteness* of light Brahmas—it is a point sufficiently conspicuous to entitle an otherwise ordinary bird to a degree of importance; but if, in addition, it is well-pencilled, of good size, fine in shape, feather, and head, it would prove a most dangerous opponent to the best specimens of the season.





COLOURED DORKING HEN.

CHAPTER III.

DORKINGS.

THE Coloured, or Dark Dorking.—This useful variety is not so largely kept in many parts of England as could be wished ; many breeders, anxious to add it to their yards, are prevented from so doing because of the difficulty of rearing the chicken upon heavy soils. In such cases, the simplest plan is to obtain some pullets of a hardy strain, and cross them with a cockerel equally vigorous, but bred in a different part of the country. If both cockerel and pullets have been reared upon clay soil, so much the better. The infusion of a cross with the Asiatic will give stamina, but in all probability it will introduce faults which years will not eradicate.

For a breeding pen select a broad, deep, long-breasted, massively built cock, absolutely white in the leg, with five well-formed toes and a perfect foot, spurs set well inside, and even, firm comb. Dorkings being birds in which *size* plays an important rôle (it tells very heavily in the show-pen), it must be borne in mind that, to breed them successfully, it is necessary to select stock birds possessing that qualification, and to rear the chicken *well*, that they may not fail to inherit it.

The hen should be a massive, squarely-built bird, very broad in back and breast, with a neat head, a small erect comb (unless rose-combed), and possess five perfect claws. It is advisable to introduce fresh blood every year, as no variety of fowl suffers more from inbreeding. The rose-combed birds,

which were at one time the largest, may be used with perfect safety and success, and will breed single combs. Size and weight may easily be attained with care and judicious selection; but to obtain the dark grey feather so much admired, something more than judgment is required. The fancier should select the colour he prefers, and inquire as to the origin of any bird he meets with. The parents of good coloured birds should be traced and examined, and if possible secured. It is a capital plan to purchase stock birds which are known to have thrown good coloured chickens; or, if this is not possible, to obtain some very like them, at the same time inquiring as to their antecedents. We advise the *dark* variety, as they are more favoured by the judges, possess great stamina, and are the largest.

We have seen many of the Sussex and Surrey Dorkings, and have often admired the simplicity with which they are reared; but, as the chickens are bred for the market, few find their way into an exhibition, although there are two or three breeders who supply some of the finest birds seen at our best shows.

Silver-grey Dorkings sadly lack size—a fault common to most birds of feather. Perfect specimens will always breed good coloured chickens, but the proportion of bad ones will be very large; a colour such as would be obtained by crossing the dark Dorking with a silver-grey is often obtained. To win, silvers must be large; therefore, parents of great *size*, not mere *weight*, should be mated, all badly coloured chicken discarded, and the remainder encouraged to develop themselves. A black breast, tail, and tail coverts are necessary in the cocks; and as the remainder of the body, or nearly so, is silver, it is advisable to reject any cocks having a decided yellow tinge, which must not be confounded with the yellowness of age, or that resulting from the action of the sun.

White Dorkings have degenerated; and, as in the silver-

greys, increased size must be obtained at any cost. Dorkings are Dorkings, whatever their colour, and we are surprised that so few steps have been taken in the right direction to perfect this beautiful variety, especially as there is no fancy point in colour or plumage to increase the difficulties. We are of opinion, and we believe that many eminent authorities have previously asserted it, that in a few years a strain could be established that would defy competition. If any breeder is anxious to carry all before him, we advise him to mate a white, rose-combed cock, as large and perfect as can be obtained, with a perfect, rose-combed, grey Dorking hen of very large frame. Mate the best chickens obtained from this cross with very large and equally perfect white Dorkings of an entirely different strain. Watch the result. Probably several of the best of these chickens will be white; if not, select the largest and whitest, and again mate with white birds that are not related. This final cross will no doubt re-establish the colour, and, with the greatly increased size, they would hold their own in most ordinary classes. In breeding from whites on both sides, select birds having the cleanest appearance, those which are entirely free from yellow, and with five well-defined claws.

It is a mistake to suppose that size in a Dorking means bone. The pure Dorking is fine in bone, and this should be maintained as a point of the highest importance.



CHAPTER IV.

SPANISH, MINORCAS, AND ANDALUSIANS.

White-faced Spanish are bred more particularly to one point, the white of the lobe and face, which, from its delicacy and size, forms the great attraction in this variety. A bird must now be indeed perfect to win; indeed, the competition is now so severe that a cup pen must be almost faultless.

In selecting stock, it is well to put a young cock to not more than *three* two-year-old hens, each weighing about 6lb.—the cock weighing from 7lb. to 8lb. It is highly important that the cock's comb should be perfectly strong, firm, and erect, thick at the base, and tapering delicately to the points. The hen's comb, though falling well over the eye, should be also thick at the base—a flabby-combed hen usually throwing falling combs in the cockerels, a most fatal point. As regards breeding for face, we strongly advise the greatest caution in purchasing stock. The breeder should inquire strictly as to the pedigree of the birds, for an ill-advised cross will destroy all prospects of success. Although in the very best yards the chickens differ much in quality of face, birds are always obtained that do credit to their breeders; yet a bad cock will fail to throw a single good chicken. Let the stock birds have very white and perfectly smooth and large faces, and be of a strain which can be depended upon. The minor points, such as legs, shape, plumage, and size, must of course be correct, but are more easily obtained.



SPANISH COCK.

The chickens should not be hatched earlier than the end of April, as early broods are often delicate, and die off mysteriously. When the faces begin to show, pick out and discard those showing a decided red tinge, for the fault will only increase with age; but the bluish-faced chickens should be retained and well cared for, as they generally make the best birds. Good Spanish cocks will sometimes blush a little, and when this happens they should be shut up in the dark, away from the hens, and their faces washed twice a day with milk. Sometimes the sun will discolour the face, and at other times it is spoiled by a discharge from the eye. The best remedy for this, or shall we say prevention, is cleanliness—constant washing. The comb during cold weather is also liable to become discoloured or frost-bitten; when this occurs it should be rubbed with snow or any cold substance until it ‘comes round.’ As an instance of the precarious nature of the Spanish face, we may mention a bird we saw at Bristol Show, January, 1871. After winning the cup in a class hitherto rarely seen, he went ‘all to pieces;’ in fact, his face suddenly became so much discoloured as to cause the strongest comments to be made by the uninitiated upon the judging of Mr. Teebay.

Minorcas, at one time called Red-faced Spanish, and principally cultivated in Devon and Cornwall, are now generally bred and exhibited throughout the country. The chickens may be hatched early in the year, as, unlike the Spanish, they fledge and thrive during cold weather. A cockerel may advantageously be mated with hens, although a cock is perhaps preferable. He should be a smart, active, large bird, with long wattles, a clean white, slightly oval ear, and a red face, and resembling the white-faced Spanish in comb and colour. The hen is a facsimile of the Spanish hen, except as regards the face and shape. Birds with white faces, coloured or white feathers, or legs other than a dark lead colour, should be rejected.

It is perhaps as well to remark that Minorcas for stock should be a little shorter in the leg than the Spanish, and more massive in build.

Andalusians resemble the Spanish in comb, shape, leg, size, and weight. The earlobe is white, and oval or almond-shaped. The colour, which in a good bird is very beautiful, is difficult to obtain, especially in the hens, and in very large classes it is rare that a single well-marked specimen is found. The ground colour is a light slate or a slaty blue, the edges of the feathers being laced or bordered with black or very dark slate. In the cock, the saddle and hackle feathers are a deep purplish slate, very velvety in appearance. Andalusians usually throw a percentage of black chickens, which are valuable in producing good coloured stock.



CHAPTER V.

LEGHORNS.

THESE birds were introduced into England about 1872. We believe Mr. Tegetmeier received the first of the white variety, whereas the first of the brown came to ourselves from America. These birds are of Italian origin, and we have, since that date, seen them in large numbers in Italy and Switzerland, in several colours—cuckoo and black being conspicuous. Leghorns are now bred throughout Europe, and we have seen them at Danish, Dutch, German, and French exhibitions, where they were described as Italian fowls. Those shown in England are usually smaller than the Leghorn of the Continent, for whereas we breed for fancy points, the foreign breeder has more in view the points of utility. Leghorns resemble Spanish in form; they have red faces, large, well-serrated, single combs, white ears (these are sometimes yellow), yellow legs and beaks, and flowing tails; the plumage in the brown variety is similar to that of the black-red Game. The blacks and whites are, of course, pure in colour, and the cuckoos well and sharply marked. In breeding, every effort should be made to obtain size, in which the Leghorn is deficient; to maintain a brilliant yellow in legs and beak, a point which is easily lost; purity of white in the earlobe, instead of a yellow tinge, which is most objectionable; firm combs, and tails which have not a suspicion of being squirrel-formed. The last-named is an inherent fault of the breed, and all the points we name are more or less common, and can only be eradicated by judicious crossing with selected specimens.

CHAPTER VI.

FRENCH FOWLS.

Crèveçœurs.—In the last edition of this work we wrote : ‘ This handsome variety is fast progressing in popular favour ; it approaches what we consider perfection with rapid strides, and in a few years it will doubtless be as strange to see an inferior pen at one of our great shows, as it is at present to see a perfect one.’

Since these lines were written the Crèveçœur of ten years ago is a thing of the past. Instead of still further improving, we are sorry to say that it has decreased in favour and in quality. Its fine size and lovely crest is not to be compared to what it was ; nor can we see any sign of improvement. In our criticisms at the two great exhibitions of the year, which for very many years we have never missed, we have noticed the gradual falling off of the Crève. It is open to some energetic fancier to take up the breed and reinstate it in its former position.

We want larger-crested and larger-bodied birds ; a pound or two added to the average weight of the cocks would be very advantageous ; and could we manage to increase the size of the crest to that of the white-crested Poland (of course, preserving its formation), nothing would remain to be done. The fancier should never breed from a moderate bird ; it is both waste of time and money, and detrimental to the advance of the variety as well as to his own interest.

For winning prizes, he should select or claim—though at

an apparently large outlay—a massive, long-bodied cock, free from any white or colour, with a very full crest and beard, clean, short, dark slate or black legs, and a cleanly made, symmetrical, right-angled comb, with wattles of similar length, giving the head a uniform appearance. The comb should be free from sprigs, and of a two-horned shape. The hen should be equally massive in frame, in good condition, not fat, but simply plump, large, and even in crest and muff, small in comb, and compact and square in body. We should prefer a year-old cock and a two-year-old hen, as likely to throw the strongest chicken. March is the best month in which to hatch, and from such stock grand birds must be produced.

Houdans.—As the points most requisite in this breed for the show-pen are size, crest, and colour, it follows that, in selecting stock birds, these essentials should be pre-eminent. Large-framed, healthy birds, possessing very full, well-shaped crests and beards, should be mated; the cock possessing a well-developed, uniform comb, branching well back into the crest, the comb of the hen, on the other hand, being as small as possible. At one time plain Crève horns were admitted on Houdans, but now the comb must be antler-like, nicely spread, and covered with coruscations as in the deer. Both birds should have a well-formed fifth toe, and legs of a mottled black and white, the white slightly predominating—indeed, we would prefer to try to breed the legs a clear white. Preference should always be given, when selection can be made from a good stock, to a short-legged, deep-breasted bird, with thin wattles. In mating for colour, some breeders prefer mating a very dark cock with hens of the desired colour, or a shade lighter; others, again, breed from birds a little darker than the standard colour on both sides. Very light hens are next to useless, but ordinarily light ones will throw a sprinkling of good chicken, if matched with a cock excessively dark.

Coloured feathers must be avoided, as they disqualify. To win, colour, comb, five toes, and large crests must be obtained; but when these qualifications are fixed, size and massiveness are the all-important points.

La Flèche.—In contradistinction to the French varieties already mentioned, the La Flèche is conspicuous by its absence of crest, and therefore the presence of crest feathers on the head, however small, is at once condemnatory of the bird. It is necessary to success to produce birds of great size, with earlobes as large and white as possible, head long, a full, keen eye, and a two-horned comb, which, with the face, must be of a bright red. Birds possessing these qualifications in a high degree may be mated if they have rich iridescent black plumage. Breeding from related birds must be entirely avoided. If first-class birds on both sides cannot be obtained, a *large-framed* hen should be selected at any risk, even at the expense of an inferior comb or tinged earlobe; and, by the same rule, a cock to mate with her may be *small*, if vigorous and good in 'fancy' points; but as size is the most necessary qualification, much may be sacrificed to obtain it. Positive defects, such as light or coloured legs, coloured feathers, or presence of crest, are, of course, to be rigorously avoided.

La Flèche of the highest type can now be purchased of French breeders at very moderate prices.



CHAPTER VII.

GAME.

IN breeding Game fowls, the most important of all points is to use only the healthiest and strongest birds which can be obtained. Let the cock be broad in breast and back—not necessarily straight in the back, if flat *across*—long and curved in the neck, short and close in hackle, and with plumage tight and ‘hard as a rock.’ In the hen, the headgear should be very small, and the tail as close as the plumage. If she is spurred, so much the better, as she will breed harder chicken. Avoid short heads or necks, ears tinged with white, squirrel tails, feet in which the hind toe is short and imperfect, and soft plumage. The cock should weigh about 6lb., and the hen from 4½lb. to 5lb. Old cocks are generally preferred for breeding—even up to six and seven years—with two-year-old hens, strictly avoiding pullets. Really good strong old cocks generally throw a large proportion of cockerel chicks—a fact denoting great strength in the brood.

Black-reds are, perhaps, more generally shown than any other variety, and win the most prizes. The fancier should breed from a cock having a deep, rich, orange-red hackle, free from stripes, a very deep-coloured, velvety back, and willow legs; a red eye is imperative, the redder the better; light or tipped light hackles are fatal blemishes, and, on the other hand, dark hackles, approaching the colour of the back, are too plain for the show-pen, and for breeding throw pullets which

are much too dark. The breeding hens—not more than five to a cock—must have a clear and distinctly striped *light* golden hackle, salmon breast, and golden-brown or partridge-coloured plumage, the tight wings medium in size, and quite free from mossaing or pencilling. We have seen hens which were perfect models in shape, only losing through this slight blemish. They should match the cock in eye and leg.

Black-reds should never be crossed with other varieties for colour. If richness is required, it should be sought among black-reds alone. If the breeder determines upon crossing, he may put a richly coloured pile cock to duckwing hens, or even use piles, which are black-red bred, if his black-reds are free from pile blood.

Brown-reds.—In no variety of fowl is it more necessary to use a good brood cock than in brown-red Game; several cocks should be used, each being kept separate with their hens. The eyes must be black or very dark brown, and the face purple. We prefer to see the breast of the cock beautifully laced, and free from streaks or patches; but streaky-breasted birds have taken many cups. The legs should match in all stock birds—a dark olive or bronze throughout. The breeding hens must be of a very dark olive or green black-brown in body, otherwise the pullets will be too light. Rich cockerels may be bred from a thoroughly good brassy-coloured cock and brown-red hens which show lacing in their plumage—indeed, many of the high-coloured laced-breasted birds are produced from this cross. These cockerels running with light hens often throw first-rate cock chicken.

Duckwings are, perhaps, the handsomest Game fowls in general appearance. The silver duckwing cock has a white, or nearly white, hackle and saddle, free from any perceptible stripes, black breast, silver back and coverts, and willow legs. The yellow cock is a pale, clear straw in hackle and saddle, with a bright maroon back and shoulder coverts, and willow

legs. The hens are salmon-breasted, but differing in general colour, the silvers having a silvery grey appearance, whereas the yellows are bluish in shade. Any red or pencilled feathers are very objectionable. The purest duckwings were said to have yellow eyes, and white and sometimes blue legs; but red eyes and willow legs are absolutely necessary for exhibition. The best cockerels are bred from good-shaped, strong, light, black-red cocks, and hard, spurred, good-coloured duckwing hens, both matching in leg and eye—although some strains of black-reds will *not* throw cocks to this cross. For pullets, a white-hackled silver duckwing cock with duckwing hens answers admirably; or *pure* duckwings on both sides may be used with certainty, although the cockerels will be mealy-breasted, and striped in the hackle, whereas the cross occasionally throws good cockerels. If the strain becomes loose or slack in feather, it is sometimes well to cross with a sub-variety, and breed back to colour. Some very first-class duckwings are thrown by cocks bred from duckwing cocks and black-red hens, mated with light-coloured black-red hens.

Piles.—The best cocks are the white-breasted birds—such as are exact models of black-reds, so far as the colour is concerned, the black being exchanged for white. The richest-coloured of these birds are bred from high-coloured black-red cocks and pile hens. They are often bred from piles on both sides, but the colour is soon bred out unless the above cross is adopted. Some of our most celebrated exhibitors used to prefer mottled-breasted birds, but we think no piles so handsome as the white-breasted, which are now the standard. Capital pullets may be bred from a pile cock mated with hens bred from a pile cock and black-red hens; these same crossed hens put to a black-red cock will throw first-class cockerels. Most piles have yellow legs and white tails, although willow legs are admissible, and constantly shown. The plumage should be as rich and dark, and the *eye* as red,

as possible. White cocks put to black-red hens, or hens bred from pile cocks and light black-red hens, also produce piles.

White and **Black** Game can only be bred from self-coloured birds, although an occasional cross will produce them as a simple sport. The whites should have red eyes and white legs, and the blacks, dark olive legs and black eyes. These have improved but little in the past twenty years.







SILVER-SPANGLED HAMBURGH COCK.

CHAPTER VIII.

HAMBURGHES.

Silver-spangled.—In this, one of the grandest varieties of the Hamburgh family, it was, not long since, essential to success to breed from two yards; but time has amalgamated the old Mooney and Pheasant blood so completely, that well-bred birds will throw good specimens of both sexes.

Gold and silver Hamburghs have for years been in few hands, and, owing largely to the tricks which the professional breeders so often practise, have entirely failed to attract the attention of the genuine amateur. There are, however, no longer breeding secrets, and anyone can produce them if he chooses to buy good stock.

For breeding perfect exhibition cocks, mate a pure bred cock of the finest exhibition type—with perfect marking, colour, comb, ear, and legs—with hens as perfect in spangling and head points as can be found.

For pullet breeding, select a dark-hackled, heavily mooned cock, and four or five hens, large in spangling, and as pure as possible. The cockerels from this pen would not all be fit for exhibition, although useful for supplying stock birds. On the other hand, the pullets would be almost all of high type;



Henny Cock's Neck
Feather.

hence, it is advisable to adopt the theory of the author of a stupid pamphlet, and select cocks' or pullets' eggs only, as may be necessary—*if you can*.

We have thought it advisable to omit all descriptions of the Mooney and Pheasant fowls which appeared in the last edition, as they are always confusing, and now entirely obsolete. There



Diamond-spangled Saddle
Feather from Silver-
spangled Hamburg.



Feather from Shoulder of
Silver-spangled Ham-
burgh Hen.



Wing Coverts of Silver-
spangled Hamburg
Cock.

should no longer be any mystery about the breeding of Hamburgs—like will produce like, and from perfect exhibition birds, if they are honestly shown, the choicest stock can be produced. We should, however, at all times be careful about purchasing the exhibited specimens of many of the so-called Hamburg professionals, which are too often artistically (?) improved in comb or plumage. Such a course has often

resulted in the production of a yardful of birds none of which were fit for the show-pen.



Diamond-spangled Saddle Feather from
Silver-spangled Hamburg Cock.



Stepping of the Wing of Silver-spangled
Hamburg.



Neck Hackle of Silver-spangled
Hamburg.

Golden-spangled. — In breeding this variety, white earlobes of good size, neat combs, and thick, brilliant, metallic spangling are absolutely necessary. The cockerels are best bred from exhibition cocks and good-headed hens, as in the silvers.

Pullets may be bred from birds of the heaviest spangling on both sides, the moons being large, lustrous, green, combs neat, earlobes white, and hackles well striped.

Golden Spangles do not breed so true to marking as the other varieties, the cocks usually coming laced or blotched in breast, and both sexes often being largely ticked with white, a feature which some persons do not hesitate to remove with the scissors, if the imperfect feathers are too numerous to pluck. The best birds for pullet breeding, as, indeed, for cocks, are those cocks with the real spangled breasts; and these alone ought to

win in the show-pen, but certain of the judges have for years given the prizes to the imperfectly spangled cocks now seen in our shows. The chief point to obtain in the hen, next to marking, is colour, both of spangling and ground; and in the cock, comb and earlobe. Some judges will give a prize to anything with a smart head, and they have thus done more to encourage trimming than anything connected with the fancy.

In all Hamburgs it is advisable to reject weak or unhealthy birds. The best breeding pen we believe to be a year-old cock and three-year-old hens.

Silver-pencilled.—These birds, styled Hamburgs on account of their great similarity to the spangled Hamburgs in size, shape, and every point except markings, are entirely distinct from those varieties in both origin and constitution. To produce a clean white cockerel, good in earlobe, and distinctly laced in the sickle and side feathers of the tail—an important point—it is most advisable to select a thoroughly good exhibition cock, and such a bird may often be claimed for £3 3s. at a first-rate show. He should be mated with hens which are distinctly pencilled throughout; the pencilling, however, must be much too light, especially in the *tail*, for a show bird—dark hens will not breed good cockerels; they must, of course, be perfect in comb, and very white in ear. As it is often difficult to procure hens for breeding, and certainly impossible at good shows, it is the best plan to apply to some respectable exhibitor or breeder for a



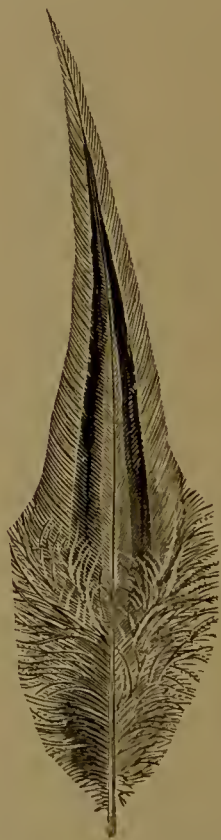
Golden-spangled Hamburg's
Feather.

selection. The best breeding hens are those which are known either to have bred exhibition cocks, or to have been produced by a pen mated to produce exhibition cocks.

Pullets, to be darkly and sharply pencilled, are bred from cocks which are much too dark for exhibition; the tail must



Hamburg Cock's Hackle
Feather.



Hamburg Cock's Saddle
Feather.

be dark, without the lacing of the show bird; the under colour, or roots of the feathers, also dark, and black marks will be found about the body. As a rule, it is well to reject cocks having a chestnut patch on the wing, although *old* birds of the best strains are often liable to this weakness. The best exhibition pullets are very darkly pencilled, and, as a rule,

cockerels of the same brood are equally dark; therefore, persons breeding pullets are able to produce their own pullet-breeding cockerels, for it is these darkly marked 'brothers' that are the required birds. Successful prize-taking cocks with handsome tails invariably throw pullets light in body and mossy in tail and wing, although it is rare that we see a hen well-pencilled in the wing at all. The hens for pullet breeding should be the best dark exhibition birds to be procured, covered with clear-defined pencilling to the tip of the tail, a very white ear, and an excessively small, even, well-piked comb. Exhibition pullets should always be examined before purchase, as they frequently fail at the tips of the feathers, and the objectionable part is removed to enable them to win.

Golden-pencilled.—The most difficult point to attain in this variety is the rich golden ground so much admired by all fanciers. They were, not long since, the only Hamburgs which could with certainty be depended upon to throw both sexes fit for winning from the same parents. For breeding both cockerels and pullets, mate a very rich, evenly coloured, dark golden bay cock, perfectly laced in the tail, and sprightly, and consequently good in carriage, with heavily and distinctly pencilled hens of as deep and even a ground colour as can be obtained. Bronzed tails are most objectionable, and should never be used. Both birds must have very small, perfectly-shaped combs, and round, stainless earlobes. In all Hamburgs blue legs are imperative.



Pencilled Hamburg's (hen)
Feather.

Black Hamburgs are often accused of being a manufac-

tured variety ; probably they are, but we have a strain, and one of the most successful in England, that has *never* been crossed, although established many years. To breed black Hamburgs, select perfect specimens of entirely different



Back Feather of Golden Pencilled
Hamburg Hen.

Tail covert of Golden Pencilled
Hamburg.

strains, and await the result : with care and attention to the demanded points, it will be found a satisfactory proceeding.

We are often told, and have as often read, that perfect birds of both sexes cannot be bred from the same parents, and that it is necessary to cross the black Spanish with dark

specimens of the golden-spangled Hamburg, and breed from the produce ; but, in the face of the fact that tolerable specimens have been manufactured in this way, we disbelieve in the theory ; such a cross would constantly show itself in the chickens, but it is extremely rare that we hear of black Hamburgs with single combs, unless at the ' barndoor.' Years ago we were informed by a large and successful breeder, well-known to the poultry world, that, out of some 300 to 400 chickens, he only met with one single comb ; but we can go further, and declare that out of as many thousands we have never met with either a single comb or any other characteristic which would point to a cross. It is essential to select birds of intensely green-black plumage, very large and purely white earlobes, and grand striking carriage. The combs should be absolutely perfect, this being a most striking point in the breed, and one demanded by judges. The legs are black, or a very dark slate. Coarseness in a black Hamburg is a fatal fault.

We are indebted to Mr. Henry Beldon for the feathers illustrated.



CHAPTER IX.

POLANDS.

White-crested Black.—In this variety the fact that, in judging, nearly half the points count for the crest alone, will show the necessity of making it a desideratum. First, therefore, as large-crested cocks throw better chicken than large-crested hens, it is necessary to secure a good male bird. His crest must be large, well-formed, and very white, or as white as can be obtained. He should have a few black feathers in front—but not by any means an abundance—long wattles, no comb, a pure white ear, short dark blue or blue-black legs, sprightly carriage, and rich black plumage, with brilliant metallic reflections. He should be well arched in the neck, and the centre of his crest must be well filled—not possessing, as so many specimens do, a bare place in the centre of the poll. The crest of the hen should be white and globular, and first-rate in *shape*, even at the expense of size; the tail should be carried erect, giving her a square appearance. For size in Polands a cock should weigh 7lb., hens 5lb. As the chickens are tender, it is preferable to breed from old birds only.

Silver.—Whether the lacing or spangling is preferred in these birds, it is equally important that they should be largely crested. We prefer the spangled birds, although the majority of winning pens are now composed of laced specimens with spangled breasts. Both varieties breed very true, and therefore it is advisable to select as stock birds well marked through-

out, distinctly laced on the wing, clear in the tail—which must be laced throughout—crest very full, not so as to completely hide the face, but the front standing up, and brushed back as it were over the head, every feather being distinctly spangled, although old birds are not objectionable if they have a few quite white feathers—but it must be only a few. In the absence of wattles, they must be furnished with a full thick beard. Dark-tailed cocks have frequently taken prizes, but it cannot be denied that birds with clear tails which are well laced are infinitely preferable. In silvers, blue legs are essential.

Golden.—Although, as is well known, when golds and silvers are crossed the chicken thrown are as perfect in characteristics as if bred from parents of one colour, yet we believe that the golden Polands lose their richness; therefore, in all cases, we would prefer mating richly coloured birds. They should also be well laced throughout, except in the breast of the cock, which, we regret to say, is still usually spangled in laced specimens.

Almost above all other points, select a cock and hens having full globular crests. Nothing can be worse than to perpetuate the great hollow crests so often seen, however large and sprawling they may be. The feathers in the crest are laced, but in adults white feathers are admissible. A rich, clear tail is also very desirable, if well laced with black; but white, however small the quantity, is almost fatal for breeding. In other respects the golden are bred similarly to silvers.



Small Feather from
Wing-bow of Golden
Polish Hen.



CHAPTER X.

MALAYS.

Red.—The chief requisites in this variety are height and close feather, but it is also necessary to obtain good colour and shape. To attain this end we quote the advice of two of our most eminent breeders: ‘Select a cock, a rich red in hackle and saddle, rather dark in shade, deep maroon on the back and shoulders, and black on the breast, or, what is equally admissible, black slightly mottled with a reddish brown; a well-barred wing is indispensable.’ We may note that it is considered advantageous to secure good colour in the cock, even at the expense of the hen, whose plumage is sometimes of a beautiful red-brown, rich in the hackle and back, but dull in the breast, and deepening in the tail. The cock should weigh from 10lb. to 11lb., and the hen from 8lb. to 9lb.; the larger her frame the better, it being admitted that the chickens take after the hen in size. Both birds must be extremely long in the neck and leg, the cock standing fully 2½ft. high, and even nearer 3ft., if possible. In good birds the carriage will be very upright, hackles very scant, especially in the hen, shoulders very broad, wings very tightly clipped, thighs strong, tail short and drooping (except in the hen, which carries it higher), and, above all, the feather excessively glossy and close; the eye should be cruel, beak very strong, comb flat, warty, and, like the ears and wattles, very small. In all Malays the legs are a bright yellow. Colour is not of the highest importance in the Malay, the judges



MALAY COCKEREL.

preferring height and style in preference to any other point. At the same time, the dark-laced hens which a cross sometimes throws are very beautiful.

Amateurs selecting breeding stock possessing the above qualifications may depend upon breeding specimens of the highest class.

White and **Pile** Malays are identical with the red in all but colour of plumage, the piles being a simple cross between the red and the white varieties.



CHAPTER XI.

BANTAMS.

Sebrights are a thoroughly artificial variety, and as such require much skill in mating for colour and lacing. It is necessary to obtain diminutive size, good comb, ear, colour and lacing, and hen feather in the cock. First: keep the colours distinct, as carelessness in this respect is believed to have destroyed the beautiful silvers of earlier days. Both varieties will throw opposite colours at times, therefore only the best coloured birds to be obtained should be used, as these sports, however good as chickens, invariably moult a mongrel colour. The cock for breeding had better show a little 'length' in his sickles, say $\frac{1}{2}$ in. over the other tail feathers; he should be first-rate, and distinct in colour and lacing, with small, firm, neat, rose-comb of a bright red, whereas the comb of the hen must be purple. Both birds have blue legs and red earlobes, although the original colour was white or blue-white; the hen must be small, and especially well-laced on the wing and tail. We have noticed in many good birds an inclination to mousing on the feather running from the edging, therefore distinct, sharp lacing is very necessary to prevent this blemish.

It was generally believed that perfectly hen-tailed cocks were infertile, but although a large majority of the eggs of all Sebrights were at one time unproductive, many of the best chickens are now bred from show birds. The Rev. G. F. Hodson, who used to breed some of the best of the early

Sebrights, once told us that he always found hen-tailed cocks fertile if treated more like fowls and less like exotic plants; the hens, if often shown, will lay infertile eggs, probably from the knocking about they receive in travelling. There is plenty of scope in Sebright breeding, but, probably from the prohibitory prices of the pens exhibited, first-rate specimens are not common; an old cock mated with two-year-old hens is preferable; at this age the cock may be very inferior both in colour and lacing, but if known to have *been* a good bird he will throw first-class chickens nevertheless. Hollow combs, light eyes, light legs, and long-tailed or hackled cocks are to be avoided. The stock birds may weigh 26oz. and 20oz. respectively, and prove successful breeders.

Black Bantams are now brought to great perfection, and need to be almost perfect to prove successful prize-takers. Both parents should be of diminutive size, have lustrous plumage, bright red comb, wattles, and face; well-defined pure white earlobes, full tail, jaunty carriage, and very dark or black legs; and such birds should be mated for breeding. The cock may weigh 22oz., and the hen 16oz. The breeder cannot do better than attempt to produce a miniature black *Hamburgh*.



Sebright or Gold-laced Bantam's Feather.

White Bantams are, in many respects, like the black. The most perfect specimens only should be mated for first-class chickens. As in blacks, the chickens must be very diminutive; indeed, we have seen many good hens weighing no more than 10oz., and cocks under 15oz. White Bantams must be perfectly free from the yellow tinge, with red face and comb, white ears, large full tail, short white legs, slim bodies, and proud consequential carriage.

Japanese Bantams are simply bred from the best specimens

obtainable. Small size, short legs, large, even, single combs purely white bodies, and large, flowing, black tails, laced with white, are the requisite points. There are, however, dark Japanese, which have no especial points but colour.

Game.—For every requisite, except size, the remarks upon Game fowls apply equally to Game Bantams. They should simply be excessively small counterparts of their larger brethren. These handsome birds are now so universally bred that we hope more attention will be devoted to them, as, notwithstanding this fact, we find that the most noted breeders are always able to hold their own. In selecting stock, discard short-legged, thick birds, game only in plumage, giving a decided preference to those which are medium-sized, long-legged, and slender. Medium birds are generally better in shape than very small ones, but of late years Game Bantams have become so diminutive that success depends greatly upon this point.

The remaining varieties of Bantam recognised by exhibition committees are the Cuckoo, the Booted, the Pekin, and the Malay. These are, however, very little bred, and need only to be produced of a very small size, and with their peculiar characteristic points. There is no art in producing them, for fanciers of the varieties are able to win with almost any healthy bird, physically perfect, and strain in good condition. We should, perhaps, remark that the art consists in the manufacture of the Bantam, and to Mr. Entwisle belongs the credit of introducing the Malay and Indian Game Bantam.



EXHIBITION POULTRY.

CHAPTER I.

COCHINS.

It is now many years since the Cochin fowl made its appearance in England, and established a position for itself, amid the jeers of thousands who had no taste for its striking appearance or pleasing habits. The admirers of the Game fowl may reasonably make invidious comparisons, but as the Game cock may be compared to the sporting greyhound, so may the Cochin be compared to the more ponderous, but more affectionate companion of man—the St. Bernard or the Newfoundland. Amidst lengthened opposition the Cochin has held its own, and, by its character and contented habits, bids fair to maintain a position hitherto unapproached by any variety save its own cousin, the Brahma. The high prices of a dozen years ago are still maintained, and it is a fact that first-rate buffs constantly command £10, £15, and £20, several specimens having in the past few years realised from £40 to £60 each.

The Cochin is one of the largest of our varieties of domestic poultry, and, without in any way disparaging the Brahma, it beats this variety in size. In shape of body it is wedge-like, the breast being as deep, broad, and full as possible; the back very broad, indeed we may use the word ‘massive;’ but the keel is extremely narrow at the stern. The back has a hollow appearance, the hackle, which should

be abundant, falling with a sweep over it, and the saddle rising gradually into the tail; when in full plumage the hackle in the cock will almost meet the saddle, and the graceful shape is thereby better developed. The tail of the Cochin is still a knotty point, inasmuch as some judges prefer short tails, or (in other words) no tails at all. This fancy causes much trimming, and pulled tails are often the order of the day. We prefer to see them left intact. A tail is essential to the breed, and to encourage 'pulling' is unjust, inasmuch as a bad tail may be prevented from disgracing its owner, whereas a good one is possibly beaten by 'no tail at all.' We like to see the cock's tail moderately full, the feathers crisp, well curled, and not too long; it should be neither horizontal nor erect, but a gradual rise from the saddle and between the two extremes. As to comb: it should be small, upright, single, thick at the base, gradually thinning towards the tips of each spike, firm, carried well back, and be well and evenly serrated, without sprigs or excrescences of any kind. The head is very small for the size of the bird (this fact may be observed in a fine pullet), intelligent, and the eye clear and expressive; the earlobe is long, pendent, and, like the comb and wattles, a brilliant red, any white being a fault; the wattles are thin, long, and well rounded. The wing of the Cochin is, strangely, *very small*, the primaries being well and tightly doubled up; in full feather the sides of the wing are always imbedded in the fluff, the cushion falling well over the tip; the thighs and legs are large and strong, the former being well furnished with soft down, the feathers curling in abundance round the hock. Soft feathers may project behind the hock, but this is immaterial so long as there are no stiff or quill feathers; the legs, which should be set wide apart, must be feathered down to the tips of the outer and middle toes, the feather not running down the leg, but standing outward boldly.

The Cochin hen has a very deep, massive, short-legged appearance, and is, perhaps, the most gentle, contented, and docile bird in the poultry yard; her carriage is particularly low, and her expression extremely pleasing; her feather, which is softer than that of the cock, reaches almost to the ground in many specimens—such birds as those in which nothing can be detected between the feather of the thigh and the laterally spread feathers of the feet. The back should be very broad, an abundance of feather rising from the middle up to the tail, and falling over the sides of the bird, giving a distinctness to this part, which is termed the ‘cushion.’ Sometimes the rise of the cushion terminates before reaching the tail, sometimes it falls into it; the latter we object to, preferring the rise. The breast is broad, and carried so low that, as the bird is running along, it appears to almost touch the ground; the wing is very small, the bow and tips being covered by the breast and cushion feathers, and the primaries are tightly clipped up; the comb should be single, very erect and neat, particularly small, low, well-serrated, and straight; the beak is small, strong, and curved; head *very* small, neat, and intelligent; earlobe red and large; wattles comparatively small and cleanly rounded; neck carried well forward, rather short, and hackle feathers full, especially at the base; tail very short, almost hidden by the cushion, and carried between the perpendicular and horizontal; thighs and legs very short, and abundantly feathered, the legs being well-feathered, thick, and yellow—falcon or vulture hock is objectionable, but allowable; the toes should be strong and straight, and the outer and middle ones furnished with an abundance of laterally spreading feathers. In carriage, Cochins are stately, majestic, and noble. A fine cock will weigh 12lb., and a hen 9lb. to 10lb., increasing for two or three years.

Buff Cochins are of a peculiar shade, which is confined

to them alone ; upon the back, saddle, hackle, and wing of the cock, it is a *very* rich golden buff : this colour should be sound, clear, and free from mealiness, especially on the wing ; if it is *even* in all these points we prefer it, but it generally deepens at the base of the hackle and on the back and wing ; the breast, thighs, and fluff are of a clear, uniform buff, neither bright nor deep, but sound and free from mottling ; the head is generally a brighter gold than the hackle, and may be preferred as such ; the tail should be a rich chestnut without any black whatever ; the leg feather should be an unmixed uniform buff. In the hen the colour should be particularly uniform, a clear, deep, genuine buff throughout, such a colour as the winning pullets at the Crystal Palace and Birmingham usually are. The generality of the birds now exhibited are either mottled, or a shade between a silver-buff and a lemon ; a really fine-coloured pullet is invaluable, and a hen, if possible, more so ; it should be noticed that a *striped* hackle, as often seen in inferior specimens, is most objectionable, and the delicate marking at the tips of the feathers, which sometimes forms a distinct ring round the neck, is also to be deprecated.

Lemons.—Cocks of this shade should be a uniform, rich, bright, gay, lemon buff in the hackle, saddle, back, and wing, which should be sound and quite free from mealiness ; the head a shade lighter, and the breast and fluff a clear, uniform light buff, quite free from any mottling or lacing. Lemon cocks are very striking from their excessively rich, even colour, and are free from the dulness of most buffs. The tail we prefer to see a bright chestnut ; black is objectionable, as in buffs.

Lemon hens are of a clear uniform lemon throughout. Lemon is a colour which, appertaining to Cochins, is difficult to describe ; it may be termed a rich, very light golden buff. Mottling or lacing of any kind is most objectionable, as the bird should be of one shade throughout the body.

Silver-buffs.—The hackle of the cock is of a gold colour, rich and gay in appearance, the remainder of the body being a very light or bright silver-buff—uniform, clear, and even in colour. The breast and fluff should, perhaps, be a shade lighter than the back and wings. The tail should be lightly bronzed, or a light chestnut: black or white being objectionable—particularly the former—but as white creeps into the tail of this colour, it is often admitted.

The Silver-buff hen is also an evenly coloured bird, uniform in appearance, without shading or mottling. The colour is a very light buff—called a silver-buff—between a lemon and a French white. We do not like it quite a French white, but approaching it. The hackle, however, is a golden colour, and sets off the bird to advantage. Silvers are now quite out of fashion.

Cinnamons are now seldom seen; the colour, once a favourite, has fallen into disrepute, and fanciers incline towards the more brilliant lemon. The hackle, saddle, wings, and back of the cock are of a deep, dark, heavy cinnamon—by no means rich or handsome in appearance. The hen is of a similar colour; and the breast and fluff, together with the leg feather, are of one uniform shade, usually described as a ‘wetted cinnamon,’ which is also the colour of the hens throughout their entire body. The tail of the cock should be a deep chocolate.

Silver-cinnamons have so entirely gone out of favour that they need no description. The washy, mealy colour of the cock is not likely, among the colours now shown, to become a prizetaker; indeed, such a bird is looked upon as one of the mongrels of Cochins by most breeders. The hen is, however, more deserving of notice; her hackle is a bright cinnamon, rather deep in shade, and forming a distinct ring at the base; the remainder of the plumage being a pale buff, approaching the colour of a silver-buff, but showing a marked contrast to the hackle.

Partridge.—This beautiful variety has gradually increased in public estimation, and although not, perhaps, so large or attractive as the buffs, it is much to be admired. The hackle and saddle are a rich bright gold, or golden red, gradually shading off to a golden colour at the base. Each feather should be striped with a clear deep black stripe down the middle. The back and shoulders are of the same colour as the hackle, but a much darker shade. The primary quills of the wing should be a deep bay on the outside web, and black on the inside; the secondaries being similar, with the addition of a black mark at the end of each feather. The coverts must be a complete and rich metallic black, forming the well-known bar, without which no bird is perfect. The bow of the wing should be a dark bayish red, and the whole of the under part of the body—breast, thighs, leg, feather, and fluff—must be a pure and rich black, and as glossy as possible. *Any* white is most objectionable. Good birds are often shown slightly red in the fluff of the thigh and in the throat; this was once looked upon as a disqualification, but we notice that judges have now and then awarded a prize to a cock marked in this way.

The tail of the partridge cock should be a rich, metallic green-black, entirely free from white. White down or fluff is also to be avoided in the roots of the tail. In the hen the hackle is a beautiful gold colour, every feather striped with a deep, broad, black stripe down the middle. The remainder of the body is a light brown—not a yellow-brown, as is often seen, especially in the breast; the feathers being well and distinctly *pencilled*—not mossed, or merely marked—with a much darker brown, the pencilling reaching well up to the throat, and being plainly observable on the fluff of the thigh. The shafts of the feathers should be clearly noticeable from their brighter appearance.

Grouse hens (the cocks to match being partridge) are

much deeper in colour, the hackle being a deep red gold colour striped with black, and the body plumage about two shades darker than the partridge, the pencilling being more distinct than in that colour; the shafts of the feathers are also darker.

White Cochins do not need any description as to colour; it is, however, necessary to say that the plumage must be a spotless white throughout—colour, no matter how trifling, being most objectionable; and the yellow tinge, almost universal though it is, is as undesirable.

Blacks we may speak of in almost similar terms; the slightest mixture of white or colour is a disqualification. The black should be of the brightest metallic shade.

Cuckoo Cochins occasionally show to advantage, and we have seen specimens which would run good whites hard in competition, but, as a rule, they are scarce. The ground colour is grey, every feather being transversely striped with a dark or slaty grey, similar to the cuckoo itself.

Emu, or Silky Cochins are peculiar, from the fact of the feathers throughout the body being fluffy, loose, and the barbs entirely disconnected; they are much smaller than other Cochins, although, from the nature of the feather, they have a very deceptive appearance.

In concluding this description of Cochins, it may be mentioned that, where birds are intended for exhibition, they must match in a pen, the flights must not be twisted or the backs deformed. Crooked tails, lop combs, clean, red, or green legs are also disqualifications; and in the partridge variety the cocks must not have mottled breasts or thighs. In all cases the judges look *most* to colour, next to size and shape, in the order named.



CHAPTER II.

BRAHMAS.

SINCE the first edition of this work appeared the Brahma has reached and maintained a position which is almost unique. It has produced a series of the finest classes at our largest exhibitions which have ever been known, and it is still one of the most popular varieties. There is something in the race which is fascinating, but we incline to the opinion that it is less valuable from a utilitarian point of view than it was—as it is bred more and more for fancy instead of useful points. It *should* combine in shape the proportions of the Cochin and the Dorking; but judges have ruled otherwise, and they persistently determine to regard it as a Cochin, and to judge it as a Cochin in form and feather. We have always believed that it owes its existence to Cochins; but being a Brahma, if only in name, we should have been glad to see it of a useful type, and grown with a more profitable view than is the Cochin. To this end the breast should be forward and broad, the back short and broad, the saddle *rising* into the tail, which in the cock should be even, unbroken, crisp, and lustrous. We like to see the sickles lightly laced with silver, and not more than an inch longer than the remainder of the tail. It should be carried almost *upright*, but not so much as to be unsightly. The tail coverts should be broad, well covered, and black, the lesser coverts being laced. The head of a Brahma is small, and somewhat fine and slender—coarse heads being an abomination; the eye



DARK BRAHMA PULLET.

often has a peculiar expression, owing to the breadth of the head—although this point, once so prominent, is almost lost—and it is bright and intelligent. The beak is strong, curved, and dark ; the comb small—the smaller the better—having the appearance of three small serrated ridges, which unite at the pike, and which should be a little curved backwards. The central ridge, like the others, is serrated, but larger and more distinct. The deaf-ear or earlobes and wattles are long and bright red ; the former well rounded, the latter pendent. The neck should be *well curved* : this is a most important point, giving character and style to a bird which, however good, would never *look* so well without it ; although, if curved too much, it is termed bull-necked, and is not appreciated by the judges. At the junction with the head, which is shown by a small indentation, it is slender, the hackle flowing in abundance from this point, and falling well over the back and shoulders, giving the former a short and hollow appearance, and harmonising with the uniform shape of the tail. The hackle should be *white*, not *yellow*, silvery in the dark variety, each feather having a broad, deep, black stripe down the centre. Whether the saddle of a light cock should be striped is a matter of fancy, for it is not imperative. Some breeders object to this marking, stating that it does not belong to the variety, and that no pure light Brahma ever had it. As it is, cocks are either shown too dark or too light in pencilling on the saddle. Dark Brahma cocks are always well-striped on the saddle, the ground of the feather being silver. The wings are small, and the primaries chiefly black in the light variety, whereas in the darks they are edged with white on the outer web, the points being well tucked under the saddle feathers of the cock, and imbedded in the fluff of the hen. The secondaries are white on the outer web in both varieties. The thigh feather should be abundant, running down to the hock in the hen. Dark fluff is most objectionable in light Brahmas,

and, however true a pearly under colour may be, it does not *look* well. The hock should be well-covered with soft, curling feathers; all stiff or quilled feathers are to be avoided; but though a bird may *appear* heavily hocked, if it is not so, provided the feathers are soft, it will meet the approval of our best Brahma judges. The leg should be rather short, strong, yellow, and heavily feathered down to the tip of the middle toe, the feather standing well out, and being slightly mottled with black in the light, and with white in the dark variety. Light Brahmas should be very white (yellow being most objectionable, although it is still very plentiful), except in those points already described—viz. hackle, tail, and leg feather.

In dark Brahmas the breast and fluff must be black, although for some years mottled breasts were admitted, and specially provided for at the National Show; but the fancy has definitely made up its mind upon the point now. The head, back, shoulders, coverts, wing-bow, and saddle are silvery white, the latter being well-striped with black, the stripes becoming broader nearer the tail. The lustrous bar on the wing is formed by the wing coverts, which are of a rich green-black. In light hens the head is white, in dark almost grey, although we have seen some beautiful light hens striped from the top of the head. The legs are very short, giving the bird a low appearance in comparison with the cocks. In each variety the hackle is well-striped with a broad, deep, black stripe, clear and distinct to the eye. The colour of the dark hens is very opposite to the lights: it is variously described—some strains are of a peculiar light-brown colour, each feather being distinctly pencilled with a darker brown; others are described as of a dingy white or grey ground, the pencilling being of a darker grey; in either colour it should run well up to the throat. But the best-coloured birds have a dark grey ground, with an intense black pencilling throwing up a metallic

reflection ; these are rare, but if more generally bred would be sure to hold their own. In exhibiting Brahmas, it is of course necessary that the birds should match both in colour and comb ; it is useless to show any but pea-combs. The leg should always match, the colour being a bright yellow in the light, and a dusky yellow in the dark varieties. In weight a fine cock should be 11lb., without superfluous fat ; some birds reach this weight in their first adult year. Light cocks are generally a shade lighter, 10lb. being a capital weight for a young bird, and 11lb. for an old one. Dark hens in their first year (not pullets) will often weigh from 8lb. to 9lb., good birds sometimes reaching 9lb., and occasionally more. Light hens turn the scale at a little less. Two to three-year-old hens, of both varieties frequently weigh 10lb., and sometimes 11lb. As in Cochins, colour is the most important point in all Brahmas, and next, size ; shape, feather, and condition following as the necessary qualifications for a winning bird.

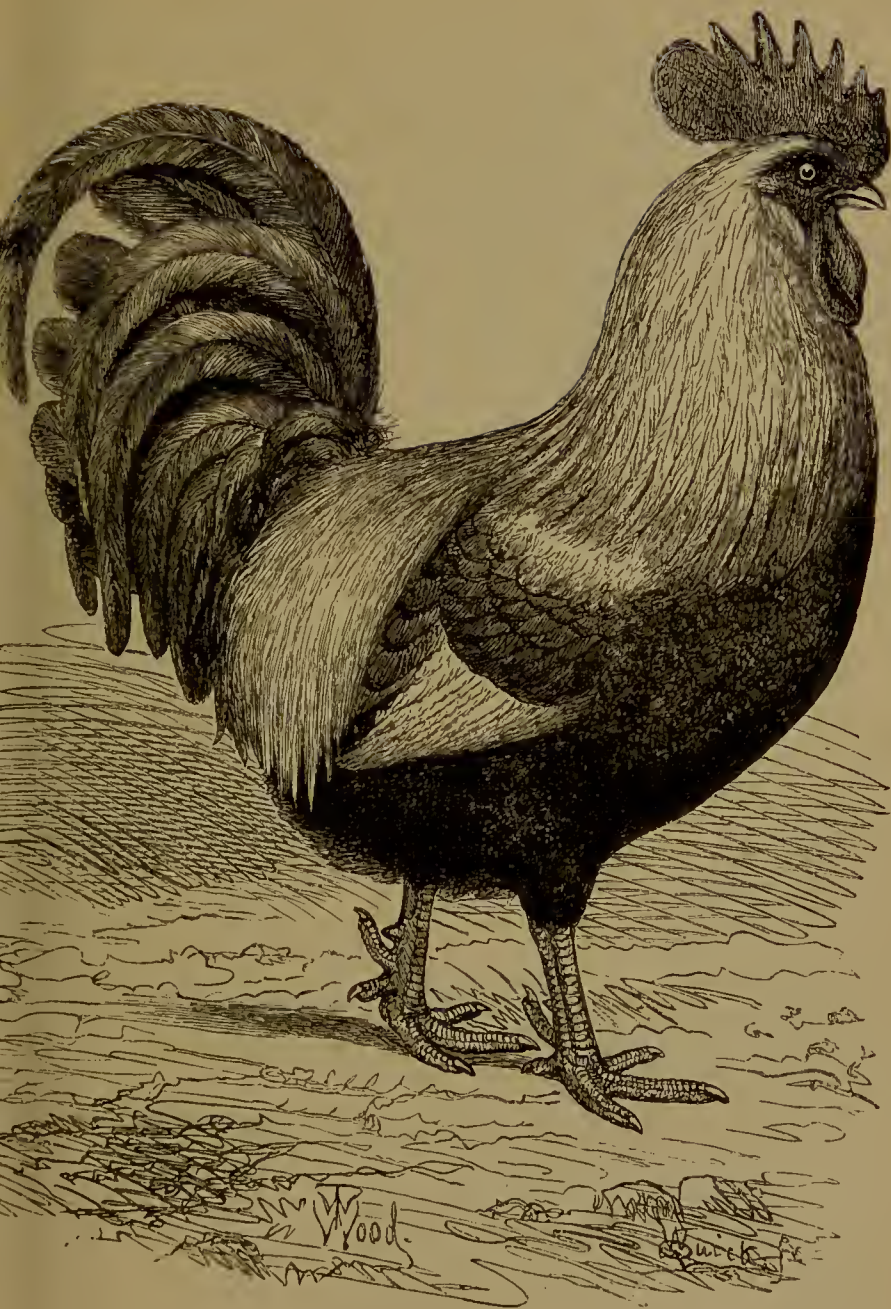


CHAPTER III.

DORKINGS.

DORKINGS are principally bred for size, but in consequence of the importance of colour in silver-greys and whites these varieties cannot compete successfully with the common Dorking in weight. However, all Dorkings should be square and massive in appearance, the breast being long, full, and broad; the back very wide; the thighs short and stout; the legs short, white, clean, and stout, the spur being inside, the feet having five toes, well-separated and developed; the tail well-expanded, erect, large, flowing, and the feathers broad; the wings large and well-clipped up; the head rather small and neat, the comb either an erect, clean, evenly-serrated single, or a straight, well-piked, even rose, square in front; the beak strong, and rather short; the earlobes long and pendent; the wattles very long, broad, and rounded. The body of a Dorking is bulky, deep, and plump, and the carriage of the cock noble and stately. The comb of the hen, if single, should be largely developed, and fall over one side of the face; her neck is short, wattles rather large, legs short and thick, wings large, tail large and full, feet five-toed, and general appearance of body bulky, square, and plump, as in the cock.

Greys, or Dark Dorkings.—The colour here is not significant, provided the partners of a pen match. Dark and light birds have each their admirers and triumphs. We must say, however, that we prefer the light cocks, with black, or nearly black, breast, and white hackle, back, and saddle, *lightly*



COLOURED DORKING COCK.

striped, the wing being white, with a distinct and brilliant metallic bar. The dark hen, however, is the one which we prefer to any other. Its feather is almost black, but provided with a white shaft ; the breast, however, being of a light brown. The old-fashioned hens have a speckled ground colour and a heavy dark lacing to each feather.

Silver-greys are of a deep, glossy black on the breast, thighs, and under parts ; the head, hackle, and saddle being silvery white. In the wing, the primaries are black, with a white edge on the outer web, the secondaries being white on the outside web ; the coverts are green-black, and form the well-known bar, the wing-bow being white ; the tail is a deep black, and the sickle and side feathers a rich green-black ; the lesser tail coverts should be laced with white. The hen has a silvery head and hackle, the latter striped with black ; the breast is salmon-coloured, fading off towards the thighs, which are grey and the tail a dark grey, very dark in the inside. The remainder of the plumage is a silvery grey, the ground being silver, and the minute pencilling grey ; the latter is not sufficiently distinct as to be termed marking, and where it reaches this distinction it is faulty. There should be no shade of colour of any kind.

White Dorkings need to be of a virgin white, a colour often difficult to obtain in the cocks. Any black or coloured feathers disqualify. Rose combs are essential. In this variety a better white and greater size are most desirable.

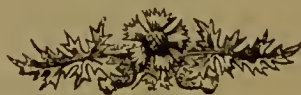
Cuckoo Dorkings are little cultivated. The marking is a simple 'cuckoo' throughout the body, the general points of the Dorking being exactly similar. This variety is in great need of size, better colour, and neater combs.

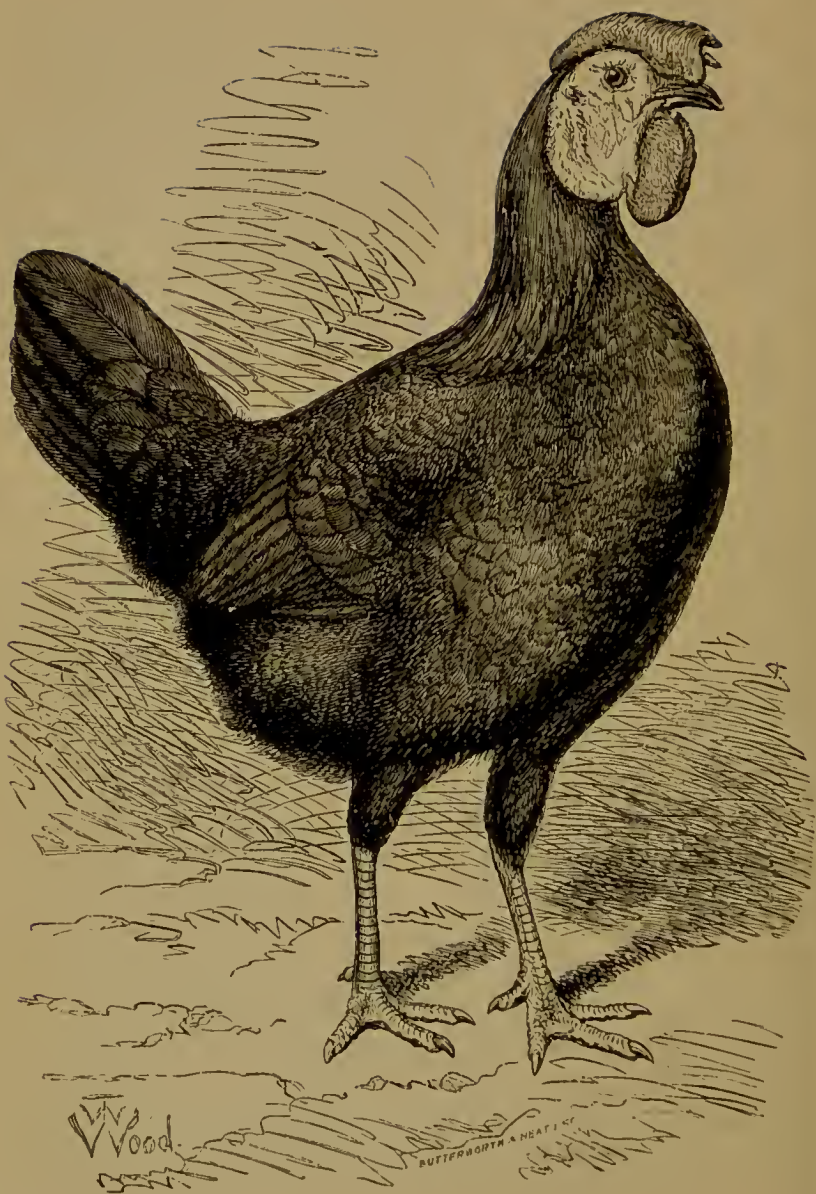
We have noticed from time to time a variety of colours in Dorkings, more particularly in Sussex, where shades and varieties of the same family are indiscriminately mixed. There are the speckled, which are of a mottled or cuckoo

marking in different colours ; also the blue Dorking ; but they are unknown as exhibition birds, except in the immediate neighbourhood of Sussex.

In weight, a young Dorking cock should be at least 11lb., without being positively fat ; and a year should put on from 1lb. to 2lb. extra. Fine young hens will weigh 9lb., and sometimes 10lb. We have frequently seen this weight in young and healthy birds, and consider it easily attainable. The silver-grey and other varieties are usually from 2lb. to 3lb. lighter.

It may be remarked that, in selecting Dorkings for exhibition, a lop-comb in the cock is, although not desirable, by no means as disadvantageous as in Spanish or Cochins. Of all points, next to the actual body, judges look to the feet and toes. Swollen feet must be stamped out, and also monstrosities in the toes. The extra toe should be well-placed, distinct, and turned upwards.





SPANISH PULLET.

CHAPTER IV.

SPANISH, MINORCAS, AND ANDALUSIANS.

ALTHOUGH the white-faced birds are now generally known as *the Spanish*, it is an undoubted fact that the red-faced, the white, and the blue birds are as much Spanish in origin, although differing in colour and face. Of all points in the white-faced birds, the face itself is the most important. Indeed, so important is it, that we believe size and constitution are sacrificed to obtain it. It should rise well over the eye to the back of the head, and forward to the beak, joining the earlobes, and meeting under the wattles. The higher it extends, and the longer and broader it is, the better. The earlobes should be long, pendent, very large, well-extended, and well-rounded. The shape of the earlobes is seldom good at the present time. Almost every bird, however good in other points, has a lapped or folded earlobe, than which nothing can be more reprehensible. In quality, the face and earlobe should be very smooth, fine, opaque, white, and entirely free from wrinkles, especially round the eye; any red is a fatal fault. In the hen, the arched and rounded shape of the face and wattles is, perhaps, more conspicuous than in the cock. We would lay particular stress upon the *shape* of the face, remembering a pen most exquisite in this point, which, although having *small* faces, came out winners in a strong competition, beating several crack birds having much larger, but ugly, faces, the quality being equally good. We prefer breadth with absence of depth to the reverse in a

Spanish fowl ; but we would give the pride of place to any bird of quality with an especially smooth face and lobe, over those possessing mere quantity of white. The comb of the cock (a most important point) should be *moderately* large ; not so large as is now usually shown—a size which the best judges deprecate—firm, erect, straight, and quite stiff, without the suspicion of a lop. It should be broad and thick at the base, gradually tapering to the points, and rising from the beak in an arched form over the back of the head, being evenly and deeply serrated, and without those questionable ornaments, sprigs, or other coarse excrescences. We prefer a brilliant red comb, of fine and delicate texture, even though it be small. The hen's comb should be particularly thin and delicate, moderately large, free from sprigs, and falling well over the side of the face. During the moult the hen's comb often becomes *erect* and small, therefore a bird should never be condemned without inquiry, or a knowledge of the breed. The beak should be long and thick, and of a deep horn colour ; the head long and rather broad ; the eye full, bright, and free from any obstructions in the face. Old cocks are very prone to become wrinkled round the eye ; and we remember seeing a bird which was positively *blind* standing in a first-prize pen. The exhibitor admitted that he was blind, and had been fed by hand for some weeks. The wattles of Spanish are very long, particularly thin and delicate in texture, and of a bright red, excepting just under the beak (between each wattle), which is white. The legs should be a dark leaden colour, or a dark blue—a lighter blue is often shown and much admired—and long and fine in shape. The breast should project well, giving a full appearance to the bird ; the back should slant straight from the curve at the base of the hackle to the root of the tail, which springs upright, and is carried well forward, not slanting, as in the Cochin, or 'squirrel' fashion, as in the Japanese bantam ; it should be

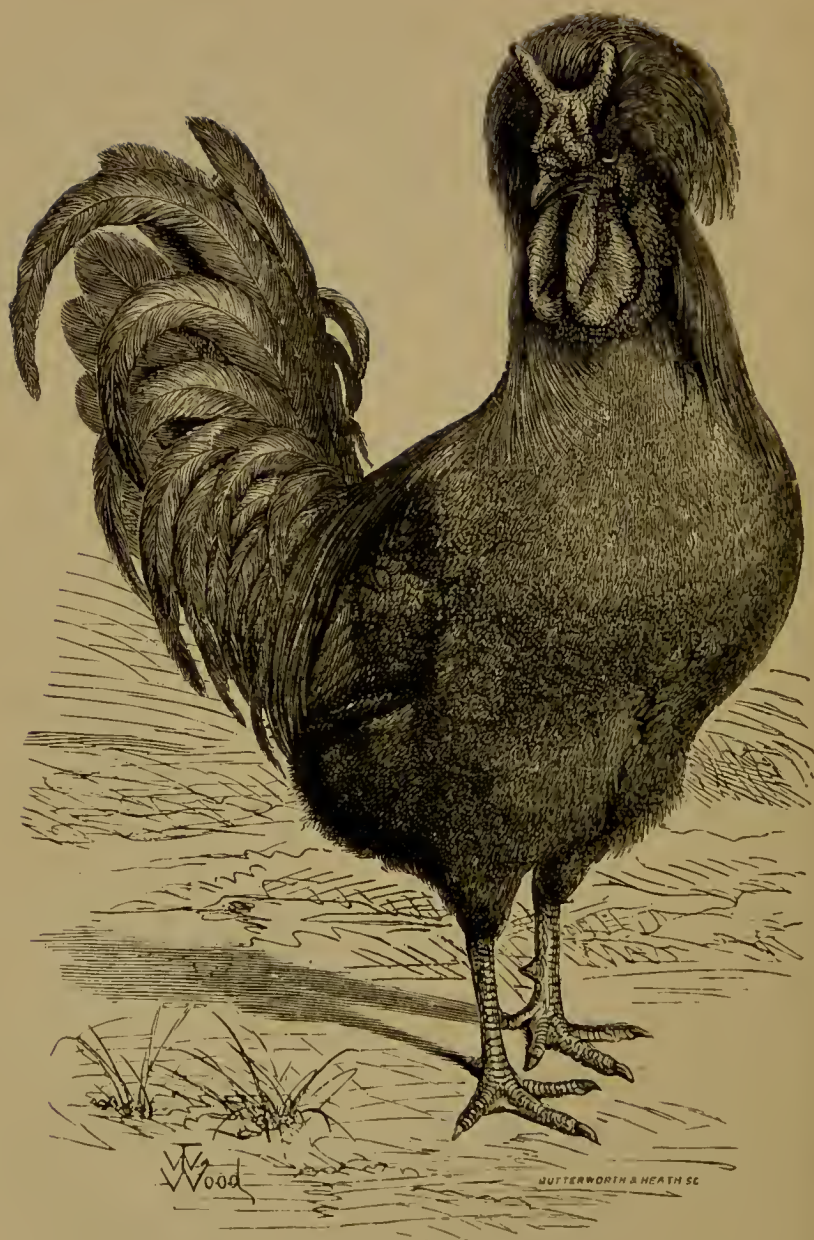
large, broad, and fully expanded, with long, sound sickles. The neck is long, and gently curved; the hackle full, and flowing well over the back; the wings are rather large, and clipped well up to the body—a loose or uneven wing looks very bad, and, luckily, is not frequent. The tail of the hen is also large, and carried erect, giving her a ‘squareness’ which does not appertain to the cock. We prefer to see the tail feathers straight, but the top pair are often a little curved. In colour, Spanish should be of the richest metallic black, literally reflecting a green lustre, especially on the hackle, saddle, and tail; they are handsome, striking, majestic, and upright in carriage, and quick in their movements. A good cock will weigh from 7lb. to 8lb., and a hen 11lb. less. To show the actual value of *good* white face and earlobes, and comb, it is a fact that much more attention is paid to these points than to the size, plumage, or shape of the bird. The disqualifications are—falling combs, red marks in the face, any mixture in the plumage, wrongly-coloured legs, and trimmed faces or lobes. This is the only breed in which feather-plucking has been permitted; but the London Dairy Show Committee have been the means of effectually checking the system, which is as dishonest as any other species of trimming. It has been the practice to extract the small feathers from the face of Spanish to improve the appearance, but this is a dishonest and ignominious custom, and birds so ‘trimmed’ are liable to disqualification. Amateurs who desire to maintain fairness and honesty in exhibiting should do their utmost to detect and check the practice.

Minorcas.—To minutely describe every point in this variety would, to a very great extent, be to describe the white-faced Spanish again; therefore it will suffice to state that the great difference existing between the two varieties is in size, leg, and face. Minorcas are larger, shorter on the leg, and have *red* faces. Short legs and large frames are

as characteristic of the breed as the red face, and must be insisted upon; any white in the face—and this is frequently seen in fine specimens—is a great defect; the comb, which is very large, is apt to lop a little—this also should be avoided. The earlobe is medium in size, and of an oval shape; but in colour, shape, colour of leg and comb, they resemble Spanish. and, as a rule, may be considered as a pound heavier in weight; the comb is, however, coarser, and much more developed than in the Spanish. White Minorcas, except in colour, are identical with the blacks.

Andalusians, or blue Spanish, are of various shades. The most popular colour is the slate blue, in which the hackle and saddle of the cock are a rich velvety black. In birds of this colour the remaining feathers are edged with a darker hue. From parents of the above colour black Andalusians are sometimes thrown (these are very like the Minorca), also what may be termed silver piles, the colour being an admixture of blue and silver. In all Andalusians the leg should be blue and long, the comb much smaller than the Minorca; but in all other points they resemble that breed. The hens should be of a light blue, with the feathers laced with a darker colour, this being their special point.





CRÈVECŒUR COCKEREL.

CHAPTER V.

FRENCH FOWL.

FRENCH fowls have not, since the first publication of this work, advanced much. To be exact, the Houdans and La Flèche are in the same position in which they stood twelve years ago, and Crèveçœurs have considerably declined, both in quality and numbers. There is great room for improvement in the latter breed, while in the La Flèche, a very handsome race, there is every chance of considerable success where they are taken up with spirit. Why it is that so few care to breed them we cannot say, but we have never yet seen a good class of this variety, at all events in this country. As for the other French varieties, La Bresse, Du Mans, and Gueldre fowls, there is as little chance of their being taken up in this country as there was twenty years ago. The principal reason is, that they present no fancy points to attract the exhibitor, who at present is too much engrossed in this way to think of points of utility.

Crèveçœurs are bred of one colour only—black—although we once hoped to see a white variety possessing some merit. We have seen white Crèves, but they were so inferior as to be unworthy of the name. The real colour of a Crève is a metallic black, as lustrous as can well be imagined, the wings and saddle being especially brilliant; in shape they are plump and massive, short in the leg full in breast, wide in the back, and square in body. The crest of the cock is very full, and furnished with pure black hackle feathers, which

should be thrown well back—hollowness or white is a fault, although old cocks usually have a few white feathers; the beard or muff should be very thick and large, growing well back to the eye, and forming what we may call a whisker. The wattles should be rather long and thin; and we prefer to see them, to some extent, uniform in length with the comb. The earlobe is very small, and should not be seen; its colour is not of much importance; we have seen both red and red-and-white on first-rate birds. The comb should resemble two straight horns, pointing nearly midway between the horizontal and the perpendicular, but inclining more to the latter; it should be quite free from sprigs, and the enlargement at the base should be uniform and symmetrical. The face is red, and almost hidden by the muffling; the beak is black, the nostrils arched, as in all crested fowls; the eye is particularly full and bright; the neck is very heavily hackled, and arched below the crest; the wings are always very clean, and tightly clipped; the tail is full in the extreme, the sickles being very long and brilliant, and the side sickles abundant and gaudy; the legs should be clean, fine, and black, or very dark slate. Crèves used to be shown with a mixture of yellow feathers on the hackle, but this is bred out of all good strains, and is not tolerated by judges.

The hen should be deep in body, very short-legged, square, and heavy, a very bright black in plumage, with large, sound tail, carried backward, a very full, round crest, free from white (although in most hens a *little* will be found), and small deaf ears, concealed by the feather; the beard should be very large, hanging in an even bunch from the beak, and running well up to the crest; the wattles and comb, as in the cock, but small; the hackle is very full, giving the neck a thick, arched appearance.

A very fine cock will weigh from 9lb. to 10lb.; but these weights are rare, 7lb. to 8lb. being the average; hens

frequently weigh from 7lb., and sometimes even 8lb. The most desirable points in Crèves, if quite black, are size and shape of crest, large frame, and symmetry of comb—ugly combs rarely win good prizes. Light legs, or coloured or white feathers, must be considered disqualifications.

Du Mans.—This variety of French poultry is almost exclusively bred for use, and its fancy points are, in consequence, little cultivated. In comb and colour it resembles a black Hamburg, but in size it is like the Minorca, and we have no doubt that it could be produced by selecting coarse specimens of these two varieties and crossing them. It is a coarse fowl, and seen in large numbers at the French shows; but as a layer and table fowl it can scarcely be excelled. Its size is in its favour, and it does not sit.

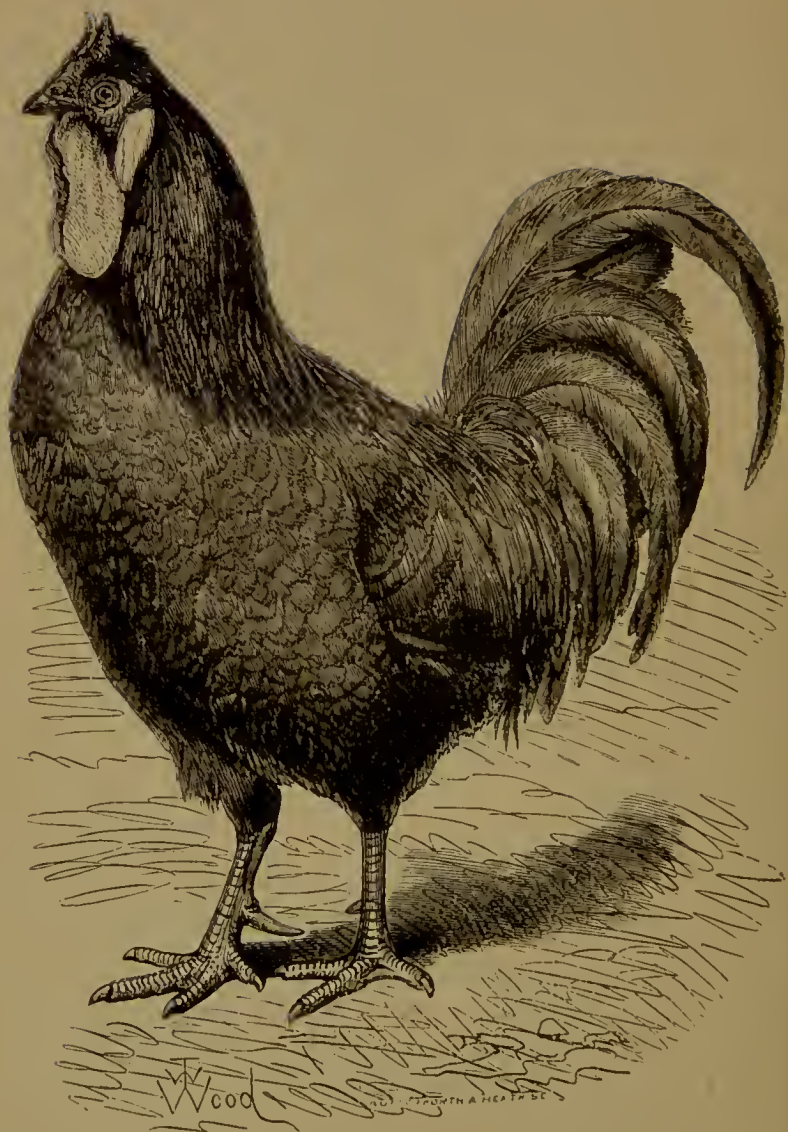
The Gueldres.—These birds are handsome, close-feathered, prominent in breast, very hardy, and medium in size, the cocks weighing 7lb. The great majority of specimens are very similar in marking and colour to the cuckoo Dorking, although there are also black, white, and grey Gueldres. The absence of both crest and comb, and the presence of long and pendent wattles, is very striking. The legs are blue, and fairly feathered, the face and ears red, and the tail large and erect. They are non-sitters, and capital layers throughout the year of large and uncommonly fertile eggs, and therefore may be summed up as a really useful fowl.

Houdans are a remarkably striking race, and the most popular of all the French varieties; they are large and plump, good hens weighing from $6\frac{1}{2}$ lb. to $7\frac{1}{2}$ lb., and cocks from 8lb. to $9\frac{1}{2}$ lb. In colour they are black and white, black predominating, and the white evenly distributed throughout the body, leaving no patches of either colour; the black should have a rich glossy olive or green tint, which is to be preferred to the dead shade so often shown. Well-marked birds, in which the markings or spangles are even, regular, and small, if

entirely free from coloured feathers of any kind, are exceedingly handsome; the crest of the cock is large, well-arched, falling over the sides, and full in the centre; the comb must be of the antler-shape, in which two flat branches, coral-like and broad, well-serrated, and brilliant in colour, incline slightly back towards the crest. The spiral, or horned comb, as in the Crèveœur, was at one time admired, but is now entirely abandoned. The wattles are moderately long, red, and thin; the face red, and well-covered by a very full beard, which hangs in a huge bunch under the beak; the thighs are short and stout, the legs fine, and as near white as possible, being generally, however, shaded or mottled with black; the toes straight and firm, excepting the *fifth*, which is very distinct, and curved upwards; the beak is nearly black, and the nostrils arched and wide. The back is straight and broad, the hackle full, the breast round and full, and the wings carried well up; the tail is full, well-sickled, and nearly erect; the sickle feathers are sometimes white, but preferably they should be black and white.

The best Houdan hen we ever saw was in a first-prize pen at Birmingham. She was most evenly marked, if anything black predominating; her beard hung from the beak like a bell, her comb was small and coral-like, the crest very full, globular, and evenly marked; the hackle full of well-broken feathers, whiskers perfectly developed, meeting the crest and beard, and almost covering the eye and earlobe; her fifth claws were well-grown, distinct, and nicely curved; her neck arched, breast full and well-developed, thighs short and stout, and legs almost white; her back was broad and straight, tail not too large, and well carried. Such a bird is a standard of the breed which is seldom seen.

La Bresse.—This variety may be described as representing the fat poultry of France, for certainly it reaches fabulous *weights*, although it does not attain great *size*. At



LA FLÊCHE COCK.

four and a half months a chicken will weigh 6lb., and a capon 8 $\frac{1}{4}$ lb. to 9lb. La Bresse are extremely common-looking fowls, somewhat similar in colour to very inferior silver-pencilled Hamburgs, the bodies being white, clear in the cock, but moderately splashed in the hen, more particularly on the back—the splashing on many feathers bordering upon the pencilling peculiar to the silver-pencilled hen. The tail of the cock is black laced with white, that of the hen splashed, or badly pencilled. The comb is single, large in the cock, and falling over to one side in the hen; and the legs blue. The chickens are tolerably strong, and are put up to fatten shortly after leaving the mother hens. The flesh is white, fine, and tender, and much esteemed for its flavour. The hens lay more eggs than Dorkings, and rear as many chickens, but they are not good winter layers. There are also black La Bresse, and we remember a hen of this variety which took the chief prize at the Paris International Exhibition, in 1878, that was very like the Minorca in shape. The food most esteemed for fattening for market is buckwheat meal and Indian corn. The chief merit of the La Bresse appears to be its maturing early, fattening early, and being at once cleared off, finding a good market, as delicate plump chickens should do.

La Flèche are not so generally bred as the other French varieties, but are, nevertheless, an extremely striking breed. In feather they are hard, and of a brilliant metallic black; good specimens are large and tall, the cocks weighing 9lb. and the hens 7lb., but average specimens weigh a pound less. They are long in the body and particularly so in the leg; the head is long, and strange in appearance, there being an entire absence of crest, and even comb, on the top of the head, the latter growing low down over the nostril, as in the Crève; the comb is two-horned in shape, and similar in appearance to the comb of that variety. The face is large, red, and very

bare ; the earlobe rather large, and as white as possible, contrasting in a striking manner with the dense black plumage—in shape it should resemble a florin. The eye is large and vivacious ; the wattles decidedly long, thin, and well-rounded on the lower edge ; the beak is large and dark, the nostril bridged, and surmounted by a small lump, or base of the comb ; the back is very long, broad, and slanting to the tail, which starts up at almost right angles, and is full and brilliant ; the neck is slightly curved, the hackle small but thick, the breast wide and rather deep, the wings large and firmly clipped, the thighs and legs long and stout, the latter clean, and either black or a slaty-black in colour. La Flèche are majestic and noble in carriage, and have a strong and dignified appearance.

The hen is a large bird, long and massive in body, and hard and brilliant in plumage ; her wattles are rather long and well-rounded, the earlobe large and white, and round as a shilling ; the comb is small and neat, two-horned in shape, free from sprigs, and of a brilliant red ; over the nostril is the same small knot as in the cock ; the hackle is moderately full, the back long, and the breast tolerably full and broad. The tail, which is of medium size, is rather slanting, but not carried so low as is often seen in inferior specimens ; the legs should be long and very stout, and the claws perfectly developed. For exhibition, size is an important point, but we hope to see better earlobes than have lately been shown.

Among other French breeds, the short-legged, dumpy-like **Courtes Pattes** are the only birds known in this country. These birds are very small, with massive bodies for their size, and legs so short that their bodies almost touch the ground. We have seen them repeatedly at Continental shows, and occasionally in England. In colour they are usually all black, with single, Minorca-like combs ; and they are said to be useful for rearing chickens, especially Bantams.

The remaining chief varieties of France are the Caussade,

resembling a small black Minorca ; the Barbezieux, similar to a large Minorca ; Silver Hergnies ; and the fowls of Gournay, Gâtinais, Mantes, Pavilly, and Picardy, the latter having no tails. None of these varieties are bred to comb, feather, or fancy points, although there is evidently a type in each to which French breeders adhere with more or less faithfulness.



CHAPTER VI.

GAME AND GAME BANTAMS.

BEFORE describing the standard colours of Game fowls, it is advisable to mention the points which are alike in each sub-variety, quite irrespective of colour. In the cock, style is perhaps most important: by style we mean the shape of the bird, and the carriage of the head, wings, and tail. The actual points required are long, narrow, neatly-curved heads and necks, the hackle being close and scant; broad shoulders and chest; short, wedge-shaped bodies; fine, slender sterns; short wings, carried well forward, and close to the body; long, straight legs, cleanly made, and well set apart, the spur growing low down; long toes, firmly planted on the ground, the hind toe well-developed and set flat on the ground, and not twisted sideways, a fault which gives rise to the term 'duck-foot.' The tail must be tightly carried, the feathers being close together, not upright nor drooping, as if spiritless, but presenting a light, graceful appearance: it should be composed of short, hard, wiry feathers, each being as narrow as possible; the sickle feathers should be medium in length, narrow, and gracefully curved; the comb, ears, and wattle should be cleanly dubbed, smooth, and entirely free from the slightest excrescence. A movement took place some time ago relative to the system of dubbing. We prefer to see Game fowls as they are always shown, and we should be sorry to see the system stopped; but there is some doubt about its legitimacy, hence fanciers should make themselves acquainted with the



BLACK-RED GAME COCKEREL.

law before going too far. The eye should be quick, fearless, and bold ; face bare and slender ; back broad at the shoulders and narrow over the saddle ; breast prominent and broad ; the thighs round—not flat, as seen in some of our best birds—hard, and stout ; the general carriage should be upright, bold, fearless, and defiant.

The hen is similar in feather and shape to the cock. Her comb should be single, very small and thin, a little higher behind than in front, and perfectly erect ; earlobes particularly small and tight ; wattles very small, fine, and neatly shaped ; wings rather long, strong, and carried well up ; tail close together, the feathers narrow, and carried as in the cock ; the head, neck, legs, thighs, breast, and feet are similar to the cock's ; in general shape the hen is fine and sharp ; her flat back, close feather, long neck and legs, have a particularly gamey appearance not approached in any other breed.

Black-reds. — Cock : Face bright red ; eye vermilion ; beak dark greenish horn-colour ; neck, hackle, and head, rich clear orange-red, entirely free from black stripes ; back and wing-bow rich clear bright crimson, gradually shading into orange on the rump hackles, which should match the neck ; breast, thighs, and tail, a bright blue-black, free from any mixture of colour ; wing-bar steel blue ; flight-coverts clear rich bay ; legs and feet, willow or olive-green.

Hen : Bright red comb, face, wattles, and earlobes ; eye, beak, legs, and feet, to match the cock's ; head and neck, gold and black, principally gold, each feather having a golden shaft and margin with narrow black stripes between—in other words, the hackle is striped black down the centre, the shaft being the same in colour as the margin ; back, wings, and top outer tail feathers a light drab or partridge-brown, very finely and uniformly pencilled with black, so as to appear at a little distance as if only a shade darker—brown, yellowish, or rusty wings are objectionable ; breast a rich salmon-colour, the

centre of each feather being one shade lighter; belly, ashy grey, tinged with salmon; tail, resembling plumage as much as possible. When the wings are expanded, the colour should be uniform from one extremity to the other, including the back.

Brown-reds.—Mr. Entwisle, a gentleman known as a high authority, and one of the most successful breeders of Game Bantams, gives the following as a standard of this variety: ‘In the cock the face should be a dark purplish red; eye the darkest brown; beak black; legs and feet dark bronze, dark willow, or black; neck hackle light orange, striped with black towards the bottom; back and wing-bow rich orange-red, shading lighter towards the saddle hackles, which should match the neck; breast dark and evenly marked, each feather being dark brown or black, with a lighter brown shaft and margin; shoulders greenish black; wing-bars dark green; flight coverts black; tail greenish black; thighs and under parts black, marked with brown like the breast. The hen should be a blackish purple in face, comb, wattles, and earlobes; eye, beak, legs, and feet to match the cock’s; head and neck black, each feather slightly laced or edged with gold; breast black, each feather very slightly edged with gold, and having a golden shaft; remainder of plumage black or greenish black.’ The above colours are very handsome, whether upon large Game or Bantams. We prefer the laced breast to either brown or streaky-breasted birds; some fanciers, however, prefer the hackles redder and the back more of a crimson, but the orange and crimson reds are equally admissible, and are simply matters of taste.

Of **Duckwings**, Mr. Entwisle says: ‘The cock should be like the black-breasted red in face, eye, beak, legs, and feet; the head and neck hackle is a light straw colour, quite free from black; back and wing-bow a uniform, clear, rich gold or orange, gradually shading into light straw colour on the saddle hackles; breast, shoulders, thighs, and tail, blue-

black; wing-bars steel-blue; flight coverts clear white. The silver duckwing cock has a clear white hackle, wing-bow, and back, and is otherwise like the above. The duckwing hen matches the black-red hen in face, comb, wattles, earlobes, eye, beak, legs, and feet; her breast is light salmon, each feather being a shade lighter in the shaft; neck and head white striped with black, the feathers being white in the centre and edges; back, wing, and tail like the black-red hen, only substituting a light silvery-grey ground for the drab brown. The silver duckwing hen is a shade whiter in the neck, lighter in the breast, and more silvery lustrous on the back, otherwise resembling the duckwing hen.' The majority of duckwing cocks now seen are darker in the hackles, and a maroon colour on the back and shoulder coverts: either colour is very beautiful and legitimate.

Piles.—In the cock the face is red; eye vermilion red; beak yellow or greenish-yellow; legs and feet light willow, yellow, or white; head rich orange-red; neck-hackle orange or light chestnut-red, slightly striped with white at the bottom; back and wing-bow rich clear crimson-red, shading off to orange or chestnut-red on the saddle; throat, breast, belly, thighs, shoulders, and tail, creamy white; wing-bars white; flights clear deep bay. The pile hen matches the cock in head, legs, and feet; her head and neck-hackle should be white, edged with gold; back, wings, and tail, creamy white; breast deep rich salmon, the centre of each feather being lighter; thighs and belly white, slightly tinged with salmon; on the wing-bow there is frequently a rich salmon shaft and edge to each feather, which is called the 'rose,' and is much admired by many fanciers. The above description, as also the description of black-reds, Mr. Entwisle considers to be thoroughly applicable to the present style of Bantams of these colours. Game Bantam fanciers may therefore estimate the whole of the remarks as peculiar to their own pets.

There are many styles of pile-coloured Game ; some fancy the marble-breasted cocks, others prefer the hens of a mottled chestnut and white ; of this latter variety many splendid specimens are shown in the Midland counties. The best piles are now shown with yellow legs, and the colours are deeper and richer than they used to be, and the markings better defined.

White Game must be of a clear snowy colour, quite free from a straw tinge, legs yellow or white, head-gear bright red.

Black Game are of a metallic black, quite free from colour, the hackles, wings, and tail of the cock having a brilliant glossy hue ; the legs should be bronzed black, or black.

Wheatens.—This term applies to the hens only ; they are useful birds, and in great requisition for breeding black-reds : the cocks to match them are black-reds, duckwings, or piles. In the red wheaten hen the head and neck are a golden yellow ; the breast pale fawn, tinged with gold ; the back and wings pale buff ; the tail is black, the top outer feathers slightly edged with buff ; the belly and thighs creamy, and the legs light willow. In the grey or duckwing wheaten the hackle is white, sometimes slightly striped with black ; otherwise it resembles the red wheaten.

In weight, Game fowls for exhibition should be about 6lb. to 7lb., not more, and the hens 11lb. or $1\frac{1}{2}$ lb. lighter. Game Bantam cocks should be from 20oz. to 22oz., and the hens not above 18oz. when in full condition. Smaller birds are now constantly shown, and of a very high type, so that with the recent improvements in view, especially in black-reds, there is no knowing how small this beautiful little variety will ultimately be exhibited.





BLACK HAMBURGH COCK.

CHAPTER VII.

HAMBURGHES.

THE **Silver-spangled** Hamburgh, or Silver Pheasant fowl, as it is commonly styled in Yorkshire, is a variety bred to a state of perfection which may well surprise an amateur smitten with the 'poultry fever.' Lancashire fanciers bred them for many years previous to the existence of exhibitions, but the cocks were hen-tailed, and failed to please the judges on their appearance at Birmingham, when they were at once stamped out. These cocks were therefore used for breeding only, and an amalgamation with the Yorkshire birds produced the handsome specimens now exhibited. The smutty hen-tail of the Lancashire cock, and his red earlobe and coarse comb, were replaced by the full, clear tail, white earlobe, and neat comb of the Yorkshire bird; while the grand spangling and colour of the Lancashire breed was retained.

Being birds of feather, the ground of the plumage should be a clear white, free from any tinge of colour, and spangled with metallic, satin-like moons, as round in shape as possible. These spangles should be boldly disposed from the throat to the thighs and fluff in the cock, the proportions of white and black being about equal. The wing-bars, which should be bold, even, and regular, constitute a great point in the bird. The hackle, shoulder, back, and saddle should be a silvery white, spotted with diamond-like black spangles, and the wing secondaries should be boldly spangled at the ends. The tail, which should be perfectly clear—*i.e.* free from splashes or

markings of any kind, more particularly in the sickle feathers—must be boldly spangled at the tips. The earlobes should be very round, smooth, and brilliantly white, and as round as a shilling. The comb is small, neat, firmly set on the head, square in front, coral-like, the points close and even, and ending in a pike slightly inclining upwards. The face is red (white a disqualification) and the legs blue.

The hen should be grandly spangled throughout with large, even, round moons, the black and white being evenly proportioned. The black should be a metallic colour, the dead heavy black often seen being much condemned. The neck should be well-striped from the head, the wings evenly spangled, and the bars well-defined. The comb should be as in the cock, but very small—in fact, the smaller the better. Earlobes and legs as in the cock. The tail of the hen, like that of the cock, should be a clear white, the feathers ending in a distinct black spangle. In perfect specimens the coverts have a pretty effect, being also clear white, and spangled at the tips, which are evenly disposed on the white ground of the fan.

Golden-spangled.—These handsome birds are similar in comb, earlobe, shape, leg, and principal markings to the silver-spangled, the colour alone being different; the hackle, however, of both cock and hen, and the saddle of the cock, is distinctly striped with rich green-black. In colour, the back and shoulders are generally described as a rich reddish bay, the saddle and hackle a rich golden bay, the breast, thighs, and under parts a clear golden bay, and tail a rich green-black. We prefer, however, to see an even colour throughout, and that a clear, deep, golden bay. The spangling should, if possible, exceed that of the silvers in its metallic lustre, which is brilliant and satin-like. The bar of the wing is a deep golden bay, well and evenly spangled, the wing-coverts being a little lighter, the spangles forming two well-

developed bars. The primaries also end in a bold spangle. In all spangled Hamburgs mossing and lacing should be avoided, as well as imperfect bars on the wing. The breast of the cock is generally mottled, or nearly black—this is a great fault, owing its existence to one or two judges.

Golden-pencilled.—Pencilled Hamburgs, although a totally distinct race from the spangled birds, are similar in general shape and *furniture*. Although the golden-pencil does not require great skill in matching, it is by no means easy to obtain the desired richness of colour, which should be a deep red bay in the cock, and a beautiful golden bay in the hen. The cock is a strikingly handsome bird, his rich velvety colour contrasting favourably with any other variety. The hackle is not, as it should be, usually of so deep a tint as the remainder of the plumage, but is exceedingly rich. The inside web of the flight feathers is black, and of the secondaries, striped across with black, each feather terminating in a black spot. The tail, though seldom perfect, is often marvellously laced with bay, the black and bronze tails being quite put into the shade by laced specimens shown by our best exhibitors. In the hen, the hackle is a deep golden bay, perfectly clear, and falling evenly over the pencilling on the back, which is of a similar ground colour, each feather being distinctly striped or pencilled across to the tip of the tail with rich black, free from either mossing or shading, the black and bay being distinct, uniform, and sharp. Much difficulty is encountered in producing hens rich in colour and well-pencilled on the tail and breast, the value of good specimens being accordingly very considerable.

Silver-pencilled Hamburgs are similar in all respects to the golden except in colour, the bay being substituted by a clear silvery white, entirely free from any tinge of chestnut or yellow. The sickle feathers are laced as in the golden-pencil, but with white, and the same standard applies to both

varieties. Colour and tail come first in judging, the comb and earlobe following; but it should be understood that a single or loose comb, or red earlobes, would entirely disqualify. Hens when shown together should match in comb, size, and colour, or their merits, however great, will fail to place them in the prize list.

Black Hamburgs differ only in colour. The plumage is a rich metallic black, with a visible green-black lustre on the end of each feather, giving the bird a rich velvety appearance. This variety is usually larger in size than its more showy brethren. It is necessary to produce combs and earlobes of the most perfect shape to obtain success. In the past this has usually been done by artificial means, to save the trouble and expense of production. It is not, however, difficult to breed both points with a good strain; and both Mr. Kellaway and ourselves have shown, and won the highest possible prizes with, perfectly natural birds on several occasions. We have been compelled, in several instances, to disqualify 'trimmed' birds; but the practice seldom meets the approval of committees, who listen too often to exhibitors who are known trimmers.





Quick

Wood

Wood

CHAPTER VIII.

POLANDS.

THESE handsome and, under certain conditions, profitable birds, are among the most attractive and striking in the poultry yard, and are principally esteemed for the size and shape of the crest, which should be as large as possible, close, well-filled with feathers, inclining backwards, bushy, composed of hackle feathers in the cock, and even and globular in the hen. The head is peculiar in shape, a spherical protuberance, which is part of the skull, being disposed on the top; this falls away sharply at the back, producing a sharp indentation. The earlobe is large in the cock and small in the hen, well-rounded, and a pure white in the white-crested variety, which is also furnished with long, fine, pendulous wattles. The spangled birds, however, in place of this general appendage, are provided with a full thick beard or muff, which may be either black or spangled, a decided preference being given to the spangled; it should start from the beak, running well back on either side, and be well-rounded. The breast is particularly prominent, deep, and carried well forward; this feature, combined with the striking carriage and beautifully arched neck, gives the bird a somewhat strutting appearance. The hackle is full, and flowing well on to the back, which is broad, and slightly declining towards the tail. The wings are large, and carried well up to the body. In the spangled varieties the tail is either bay or silver, each feather being laced with metallic

black; some fanciers do not object to a little mossing, but in close competition it is needless to say which is requisite. The tail is large, flowing, and abundantly furnished with side feathers. The legs are clean, fine, rather long, and blue in the spangled birds. In the white-crested, a darker blue or black is permissible. All Polands are smart, brisk, active birds, and erect and noble in carriage. It may be noticed that, although their combs are not developed, the two-horned character can be traced, however small it may be.

White-crested Polands are decidedly the most attractive of the crested race. The crest of the cock, unfortunately, is prone to become yellow—a fault apparently inherent in all white male birds. It should, nevertheless, be as white as possible, and although perhaps, as a rule, it is not so large *round* as in the spangled birds, it is decidedly fuller in the centre. Both cock and hen are adorned with a tuft of black feathers growing in front of the crest; if not in large quantities these feathers are not discountenanced, they evidently being an attribute of the variety. The whole of the remaining plumage should be a rich lustrous black, without a shade of rustiness or white, which, however, may often be found in the primaries.

Silver-spangled Polands are larger than the preceding, and, as a rule, weigh about a pound more. The ground colour is a clear silvery white, and the markings an intense iridescent black. The crest of the cock, which is usually hollow in the centre, and hanging in abundance over the head, is tipped with black at the end of each feather. The hackle and saddle we prefer to see well-*striped* with black, the stripe being bold, sharp, and running down the centre of the feather. Many good birds are, however, shown, in which these feathers are laced, the ends being tipped with black. Again, the general plumage may be either laced or spangled; but it is time that the spangling, which is now only seen to any extent

on the breast of the cock, should be abolished. The best birds now exhibited are laced, and this is the proper marking. It is most important that the crest, shoulder, tail, wings, back, and breast of the hen, and the breast, bars, and tail of the cock, should be evenly and boldly laced. In first-class birds the marking extends to the thighs and beard. The wing-coverts, which, in addition to their lacing, are slightly spangled at the tips, form a handsome bar, which should be as distinct as possible. The primaries are usually spangled at the tips, and the secondaries marked with a crescent at the end of each feather.

Golden-spangled.—It is necessary only to describe the colour of this sub-variety, the marking and characteristics being otherwise identical with the silvers. It is usually termed a golden bay, but we think this hardly conveys an adequate idea of the richness and beauty of the colour; it must, however, be confessed that the narrow confines of our language do not permit the employment of a more significant term. The colour of the breast should be even and clear; the back, hackle, saddle, shoulder, and tail being particularly rich. The crest and wing-bar are rather bright in colour, whereas the thighs and primaries are dull in comparison with the remainder of the plumage.

Chamois Polish are a variety largely bred in France, and, in a few words, they may be described as golden Polish, in which the black is replaced by white. They are smaller than the other laced varieties, and have smaller crests and less perfect markings; the colour, too, is generally too pale; but they are an extremely handsome variety, and deserve greater cultivation. French breeders have them in much greater perfection than we in this country.



CHAPTER IX.

MALAYS.

MALAYS are the giants of the poultry yard, and were at one time, happily long past, much used for imparting size to common fowls. Their flesh is somewhat coarse; it has a brownish yellow tinge, and is not by any means a desirable cross for the table. The cocks weigh 10lb., and sometimes 11lb., and stand $2\frac{1}{2}$ ft. high; the hens weigh from 2lb. to 3lb. less. In shape, the Malay is gaunt and upright, the wings close and hard, the shoulders extremely broad, and the thighs and legs long and strong. The tail droops, and is small, glossy, and of a beautiful metallic black. The head is snake-like, and rather flat on the top, giving a fulness to the eye. The face is naked, and cruel in expression; the eye, sometimes red, though preferably pearl or yellow, is bold and savage, and the beak curved and powerful. The comb is small, thick, and close to the head, having a firm but warty appearance. In feather Malays are not so hard as they are generally described, and in this point they bear no comparison with true Game, any more than they do on the score of courage. On account of their size they presume with smaller birds, and are cruel in the extreme to a beaten or unequal antagonist; but if faced boldly by a plucky Game stag, they generally, and quickly, beat a retreat. Some strains of Game have mistakenly been crossed with the Malay for size and courage; but although size, and consequent coarseness, has been obtained, the importation of courage has always been a failure.



MALAY PULLET.

The general colour is somewhat of a black or brown-breasted red, the breast often being slightly marbled. The hackle is a dark red, and is thinly feathered; the wing is a red maroon, the coverts forming a distinct and wide metallic bar; and the legs are yellow and clean. The chief prevailing colours of the hens are as follows, although there is no variety in which shade and colour differs so much: A light cinnamon body, with a very dark cinnamon, almost resembling a dark chestnut, hackle. In another variety the hens resemble the black-red or partridge Game, but the marking is coarser, and the colour less delicate. A very fashionable and beautiful feathering is that in which the brown pencilling of the centre of the feather is surrounded with a broad green-black edging or lacing. This, when shown in perfection, is the most beautiful of all. The Malay is almost the only fowl in which a standard for colour and marking cannot be laid down. The slightness of wattle and earlobe is remarkable in this breed. The white variety differs only in the colour of the plumage. Malays are not so well adapted for exhibition as any other variety, looking much better in a small yard or run, where they can be easily and advantageously kept; they have, however, one serious disadvantage—their quarrelsome nature often causes them when in confinement to mutilate each other in a distressing manner. They are certainly hardy, but the chickens fledge late, which is a great drawback to their attaining size and symmetry. It is well to let them have a constant supply of food and water, or they become exceedingly irritable and quarrelsome. Indian corn and barley-meal form the best staple food, meat being always avoided; plenty of green food is also a desideratum. The hens are steady sitters, but do not permit handling with impunity. The eggs of the Malay are rich, and mostly dark in colour, but they sometimes vary considerably both in size and shade.

CHAPTER X.

LEGHORNS.

THESE striking birds are still popular in England, although there is not the rage for them that appears prevalent in America. The first Leghorns came from the States, and were for some time supposed to be American fowls; but they are Italian, by which name they are now known and exhibited throughout the Continent. We have seen them at French, German, Swiss, Dutch, and Danish Exhibitions in far greater perfection, as regards useful fowls, than in England, and offered at exceedingly moderate prices. In North Italy they are common, and we have seen them sold at 1s. 6d. each, the colours not being confined to brown and white, blacks, piles, and cuckoos being quite common. The brown variety was introduced by Mr. L. Wright and ourselves from the yard of Mr. A. M. Halstead, of New York, Mr. Tegetmeier being the first to import the whites; the first birds to take a prize in this country having, with the Plymouth Rock, been bred by ourselves. We suggested the first class for American fowls ever offered by a committee, when some first-rate white Leghorns were shown. These were very superior in earlobe to the brown Leghorns; but we were nevertheless disappointed in this particular point, for, instead of being similar in colour and texture to that of the Hamburgh, it was actually yellow, a colour which we are sorry to say is still often exhibited.

The Leghorn cock should be an upright and sprightly bird, standing and carrying his tail erect, but not squirrel-fashioned.

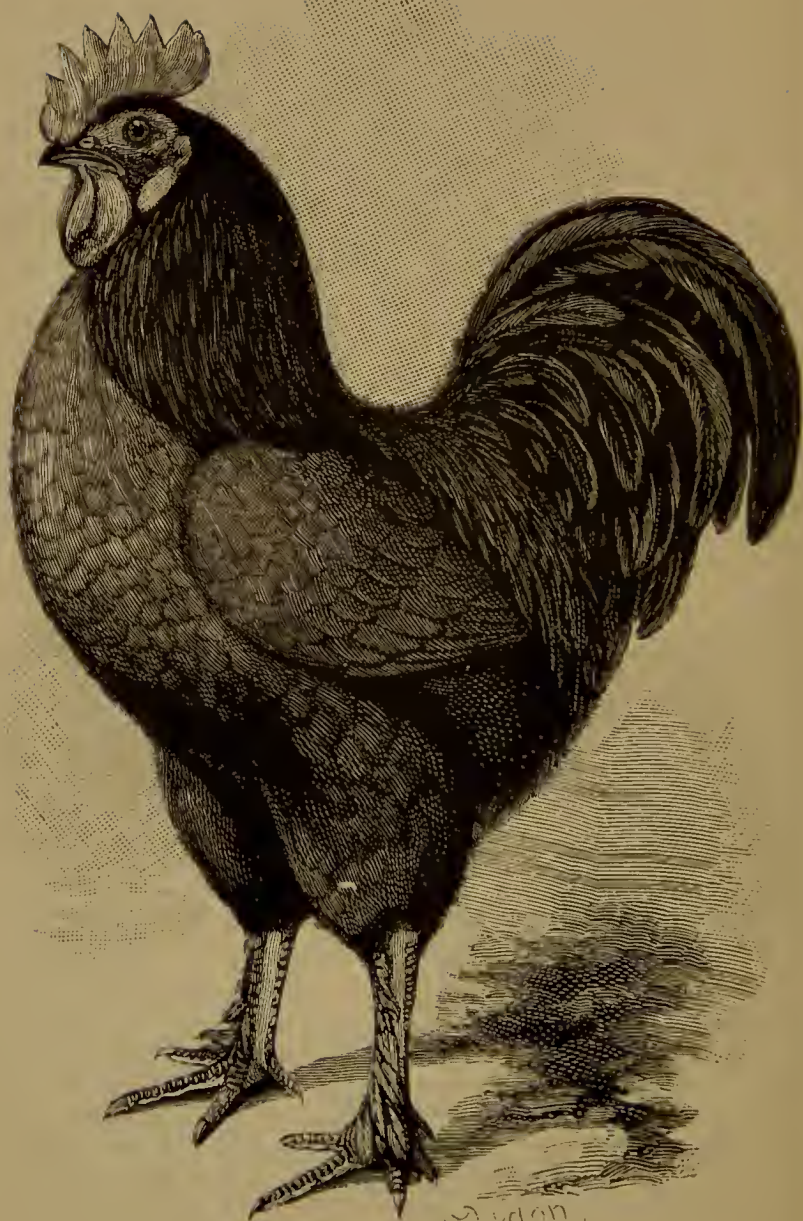
The comb is large, single, brilliantly red, firm, and grown well back ; the head is short ; the wattles are long, pendent, even, and very red ; the earlobes smooth, slightly pendent, and a clean opaque white ; the eye is large and quick ; the neck long, and gracefully curved ; the hackle full and flowing ; the back very short, the tail starting up almost at the base of the saddle, which is rather broad, and plentifully feathered ; the breast is 'full, carried well forward' ; the wings well clipped up, and not too large ; the tail large, and plentifully adorned with side sickles ; the legs are a brilliant yellow, and rather long and slender. In white cocks, the hackle and saddle incline to the unpleasant straw colour ; this, however, must be avoided. Lop combs, stained or yellow ears, and blue or white legs, are disqualifications. The hen is a deeper bird, rather square in body, with full, round chest, close plumage, large and erect tail ; the comb is large and red, and falls over to one side ; the face is red, the earlobes white, smooth, and free from folds ; the wattles rather short, round, and thin, and the neck long ; the wings well tucked ; and the legs rather long, slender, and yellow, to match those of the cock. Her comb must not be upright (*i.e.* prick-combed), although in the moult many hens are thus temporarily adorned.

Brown Leghorns approach in colour, in both sexes, dull-coloured black-red Game fowls. In the cock, the hackle and saddle are of a dull gamey red, the tail being a lustrous black, the breast and thighs black, and the legs yellow. The hens, excepting in comb and shape, closely resemble black-red Game hens. The general body colour is very similar, although it is deeper, and the pencilling less delicate ; the breast is a deep, dull salmon, shading off to ashy brown towards the thighs. We have bred many chickens, all of which were particularly true in feather and fancy points, very precocious growers, and hardy in the extreme. The pullets are splendid layers of large white eggs—indeed, in this respect

they have few superiors. They are not great eaters, and this fact, together with their productiveness, may account for their not putting on flesh for the table. At any rate, Leghorns are invaluable to egg-farmers, and we do not hesitate to recommend them strongly. The black and cuckoo varieties resemble the others, except in colour; the former, with their white ears, and yellow legs and beaks, being very striking.

One of the principal fancy points in the Leghorn is the five-point comb; but we would much rather see greater attention paid to the improvement of its size, as is the case on the Continent.





LANGSHAN COCK.

CHAPTER XI.

LANGSHANS.

WHEN this breed was first introduced into this country it was regarded as nothing more nor less than a member of the Cochin family, and the leading authors and experts of the time were practically unanimous in maintaining this opinion. The Langshan of 1875, however, was not the Langshan of 1890. Hailing from China, at a time when points of utility were at a discount as compared with points of fancy, it was declared to possess all the points of an inferior Cochin, especially deficiency of feather, length of leg, and fulness of tail, together with the general characteristics of that famous but over-estimated breed. Whether the Langshan and the Cochin were members of the same family or first cousins matters very little, for the real facts are shrouded in almost as much mystery as the origin of the Brahma; but that they had common, and by no means remote, ancestors can scarcely be doubted. Fortunately for modern poultry breeding, the early Langshan breeders in England determined that their favourites should not be bred to Cochin points, but that points of utility should be developed to the fullest extent possible without destroying the external features of the breed. This wise course is continued to-day in a manner which contrasts favourably with the action of breeders of other varieties. For example, judges

are requested by the Langshan Club to pass birds without notice in which they are able to discern yellowness of skin, while in the standard of the Club the breast is not only required to be full and deep, but "with a long breastbone and abundance of white meat."

In shape the Langshan is tall and graceful, the head carried erect, the tail longer than in the Cochin, and carried higher. The appearance is less massive than that of the Cochin; but the Langshan is solid, the Cochin a mass of feather. The Club standard suggests that cocks should weigh at least 9lb. and hens not less than 7lb., and we know that these weights are not over the mark. At the Poultry Club Show (September, 1889) Mr. Harry Wallis won the medal for the best pair of trussed table fowls of any breed, with pullets weighing 6lb. 1oz. and 5lb. 15oz. respectively at five and a-half months old; and at the Dairy Show in October of the same year the same gentleman won a prize with six months old cockerels which weighed 8lb. each. In each case Mr. Tegetmeier was judge, and, as the best recognised authority, his standard is a high one; but the Langshans, nevertheless, complied with it. We have especially examined the table fowls at the leading shows for years, and have noticed the improvement as well in the colour of the skin and the quality of the flesh as of the size of the Langshan. Undoubtedly its hardy nature, its size, and fine table qualities, have contributed to place it in the high position which it now holds; but we must not forget its claims as a layer and sitter. The Honorary Secretary of the Langshan Club tells us that his hens average 160 eggs per annum; and the Rev. A. C. Davies, of Antingham Rectory, has had as many as 268 eggs from a single hen, while upon



LANGSHAN HEN.

one occasion he obtained a first prize with eggs averaging $2\frac{3}{4}$ oz. each; but it is generally admitted that, although the eggs are a deep buff in colour and are rich on the table, they are only of an average size. Lemoine, with whom we have judged abroad, gives the average weight as 2oz. 69 grains, which is slightly under the outside average weight in individual yards— $2\frac{1}{4}$ oz. As a sitter the Langshan may be classed high, for, while less persistent than the Brahma or the Cochins, she is as safe and almost as careful with her young as the Dorking. She covers a large number of eggs, and can be handled with impunity. The merits of the breed are thus sufficiently numerous to make it desirable in the poultry yard either for breeding pure or for crossing upon Barndoor fowls. It also makes a valuable cross with the inferior table breeds, such as the Minorca, the Andalusian, the Leghorn, or the Hamburgh; while it improves the Brahma, the Cochins, and the Plymouth Rock either for the table or egg production.

The following is a standard description of the Langshan:—Colour of plumage, brilliant metallic green-black; comb, face, wattles, and ears red; beak horn colour, darker the better; eye light brown to dark hazel, with a black pupil; legs and feet dark slate, showing a pinkish tinge between the scales. The cock has a strong, medium-sized beak; a small head; an upright, medium-sized, evenly serrated, single comb, of fine texture; smooth and medium-sized ears and wattles; a well-arched neck; a full deep breast, with a long keel; long wings, carried rather low; a full and almost erect tail, although a curve is maintained from the back to the end of the short sickles, which are distinct in the breed; stout thighs; legs of

medium length for the size of the bird, distinctly furnished with a fringe of short feathers down the outside and extending to the end of the toe. The bone of both legs and feet is fine, and the general feathering close. The same points apply equally to the hen, which is deficient in cushion feathering, but provided with an open or fan-shaped tail.





JAPANESE AND SEBRIGHT BANTAMS.

CHAPTER XII.

BANTAMS.

Pekin, or Cochin.—This quaint little fowl was first brought into notice in England at the Crystal Palace Show of 1862, and was, we believe, exhibited by Mr. E. Kerrick, of Dorking, from whom most of our exhibitors obtained it; but we believe this strain is now entirely lost. Pekins are not very difficult to rear, as may be imagined from the fact that a single pair were the progenitors of the English stock. As the Game Bantam is the exact counterpart of the Game breed, so is the Pekin of the buff Cochin; and it is to be hoped that the breed, so long almost lost to us, will again be revived, now that Mr. W. F. Entwisle has succeeded in obtaining from China some specimens which will favourably compare with the very beautiful birds originally exhibited and sold at such enormous prices. Mr. Beldon, who has bred and exhibited them with great success, says that they breed as true as sparrows, but are difficult to rear; he advises that the hatching be deferred until May, as they require plenty of sunshine. The chicks should be frequently fed upon chopped egg mixed with breadcrumbs, gradually introducing a little oatmeal, until oatmeal alone, or the meal mixed with thirds, forms the staple food, in common with a little grain. Although the chicks require a little pampering, they fledge rapidly at eight to ten weeks, and look exceedingly pretty. The cockerels, however, are somewhat scanty of feather in their first year, and do not furnish completely until the second. For breeding, Mr. Beldon prefers

one-year-old birds. It may not be generally known, that the first birds of this breed introduced into England are said to have been taken from the Summer Palace at Pekin in 1860. The cocks weigh from 16oz. to 18oz., and the hens from 14oz. to 16oz. The legs should be short and well-feathered, and may be either willow or yellow. The feathers should be an even buff throughout.

Sebrights.—This famous and popular variety has largely increased in numbers, doubtless owing to the fact that it is much more prolific than it used to be, and can now be produced as readily as any other variety of Bantam. The colours are silver and golden. Birds of the latter variety are far less perfect than the former, and should be, but seldom are, rich golden yellow throughout; the silvers are a clear silvery white, and not, as they often used to be, a yellowish or buff-like white. The cock weighs from 22oz. to 28oz., and the hen about 4oz. or 5oz. less. The comb is double or rose, square in front, dark red, even, firm, and well-piked; the wattles are red, well-rounded, short and broad; the eye bold and fearless; the earlobe flat, round, and red. Sebrights were originally white-eared, but the process of breeding has quite eliminated this point, which cannot be maintained, hence the red ear has become the standard. The neck is hen-feathered, as the cock is throughout, well thrown back, and the breast carried very forward, giving the bird a very jaunty, conceited appearance, especially when he struts on tiptoe, as he is accustomed to do; the wings are tolerably large, and carried low, as in the Sultan. The back is particularly short, the saddle being quite free from the customary male feathers; the tail is carried square, and hen-feathered, excepting the two ordinary sickles, which exceed the others in length by half an inch; the legs are slender and blue. The hen resembles the cock in all respects, excepting that her head points are much smaller. The plumage of all Sebrights

is laced throughout with a deep glossy black, the lacing being even, distinct, and sharp, free from blotches or shading; this point has of late years been brought to great perfection.

Black and White Rose-combed Bantams are fashionable, attractive, and increasing varieties, and are identical in all but colour of plumage and leg. The *white* Bantam has a spotless white plumage, white earlobe, and *white* leg; the blacks are distinguished by their brilliant, lustrous black plumage, black or dark leaden-coloured legs, and more perfectly formed white earlobe—the most prominent point in the variety. These breeds have a neat little rose-comb, which is red, square in front, furnished with a good pike, and set firmly on their small, round, neat heads; the wattles are broad, short, and thin; the neck well thrown back, and covered with a flowing hackle, falling well over the back, which is very short. The breast is full, and carried well forward, giving the bird a proud, strutting appearance. The tail is full, large, grandly sickled, and carried rather erect; wings large, hanging loose, but not touching the ground; legs rather short, fine, and clean. Rose-combed Bantams are very attractive, and have numerous admirers. For successful competition, a bird should be very small, a good colour, with good carriage and earlobe, and a neat comb, and resembling the black Hamburgh in head points as much as possible.

White Feather-legged Bantams are now more numerous kept, but they are not by any means of so high a class as the rose-combed Bantams. They are quaint, but wanting in symmetry. Their combs are usually single, feet and legs heavily feathered, hocks provided with falcon feathers, and tail not sufficiently flowing. The chief points to obtain are quantity of feather, purity of colour, and smallness of size, and they must always be exhibited in first-class condition.

Japanese Bantams are a grotesque, not to say handsome, variety; the short, deep body, large comb, and erect, flowing

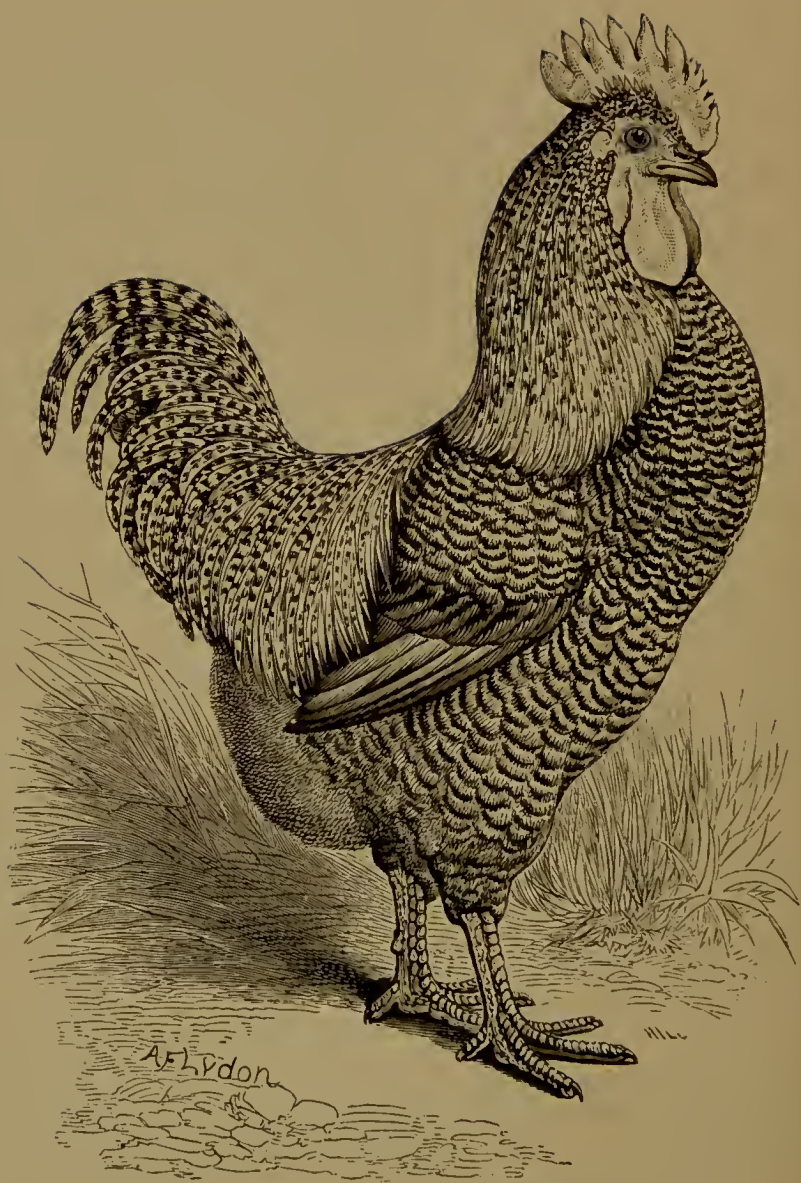
tail, giving it a somewhat absurd appearance. In colour they are either a pure white, with black tails laced with white, black, or grey throughout. Some have even been shown with a cuckoo marking. In carriage they are very erect; the breast is carried prominently forward; the tail is very large and very erect. The comb is red, single, evenly serrated, and as large as a Cochin's; the earlobe and wattles are large and red; the neck short and thick; the back short and broad; the wings long, and well carried; the legs short and yellow, and the body deep. The cocks seldom weigh more than 28oz., and the hens 22oz. The most objectionable fault in this variety is the frequency of the squirrel-shaped tail. The most charming Japanese we ever saw were in the yard of Mr. Hugo du Roi, at Brunswick. These were spangled, the colours being black, white, and yellow.

The **Cuckoo Bantam** has become popular, and is worthy of notice as a distinct variety. It closely resembles the blacks in shape, but is larger, and its plumage is cuckoo marked throughout, the tail being large and flowing. It is easily bred, and a good layer.

Mr. Entwisle has produced a most unique variety in the Azeel Bantam, for which he deserves considerable praise. The Frizzled and the Rumpless Bantam are still in existence, but possess no other characteristics beyond those suggested in their names, and may be of any colour.

There have been one or two varieties of Bantams exhibited, but, until they are bred to colour and shape, or have some defined existence as separate and distinct races or breeds, it would only confuse to attempt their description.





PLYMOUTH ROCK COCKEREL.

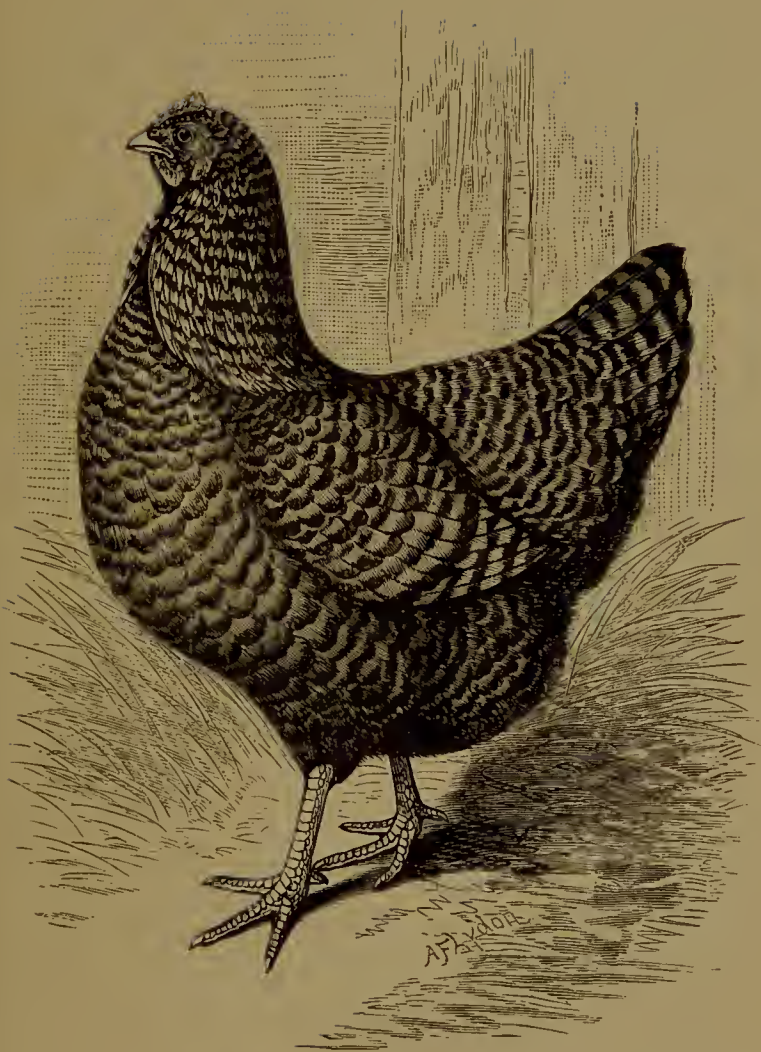
CHAPTER XIII.

PLYMOUTH ROCKS.

IN America this variety has long been considered one of the most useful, combining strength of constitution and whiteness and delicacy of flesh, with beauty of plumage and a rare laying propensity. We received flattering drawings and descriptions from many of the leading fanciers in America, including Mr. Philander Williams, Mr. H. H. Stoddard, and Mr. A. M. Halstead, and in consequence we imported a fine cockerel and two pullets, in order to test their merits, and place them before the public in this country. They were the first Plymouth Rocks seen in England, and the first birds of the variety which were awarded prizes. We were in every sense pleased with them, as they laid throughout the winter, even when Brahmas failed, proved very docile—as much so as the Cochin—and made splendid table fowls. The hens are good sitters and mothers, and lay a good-sized yellow egg. In plumage they resemble the cuckoo Dorking and Dominique; the ground colour is a light blue or steel, the feathers being crossed or shaded with a darker slate-colour; the more even and well-defined the colour and marking throughout, the better. The comb is single, but not large; the wattles moderate in size, and well-rounded; the neck not too long, curved back, and very broad; the breast deep and broad; the wings moderate, and well clipped up; the tail full, but very short, and well-carried; the legs clean, stout, short, and a bright yellow, and the toes four in number. The birds are massive, noble,

square, and compact, the cocks weighing 9lb. to 10lb., and the hens 7lb. to 8lb. Plymouth Rocks have now taken their place as one of the popular show varieties, and date their resuscitation from the appearance of an article, and illustration, in the *Bazaar* a few years ago, at which time it was difficult to obtain any in the country. Fresh importations were, however, made, and since then the classes have been increased at the exhibitions, and they have been among the most successful of any variety. Plymouth Rocks are a manufacture, but, skilfully bred, they exhibit every characteristic of a good fowl.





PLYMOUTH ROCK PULLET.

CHAPTER XIV.

ANY OTHER VARIETIES.

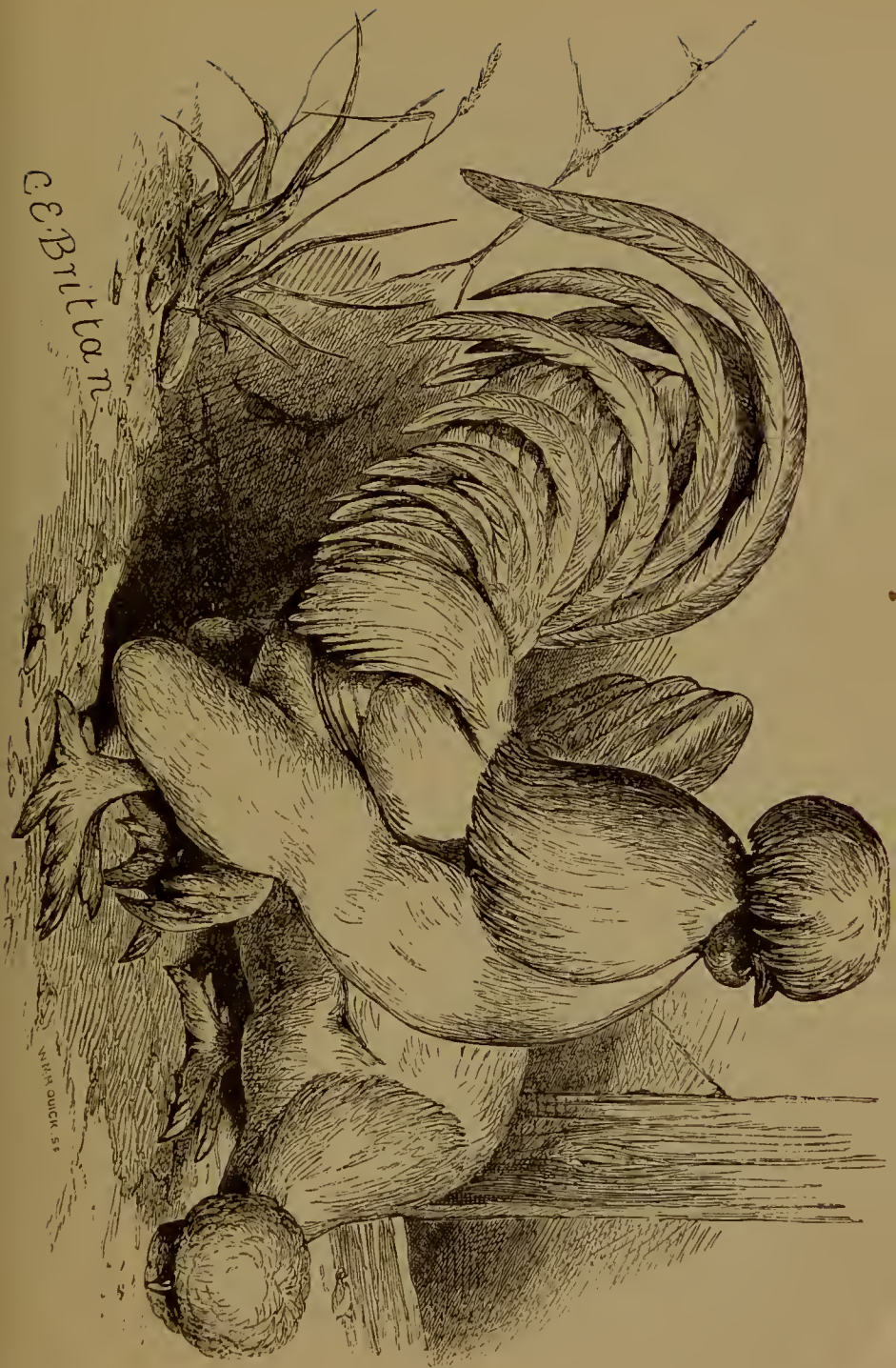
Dominiques.—These birds have now been bred in England for some years, Mr. Simpson, of New York, having exhibited a pair, at Birmingham, in 1870. They are handsome, hardy, of fair size, and excellent layers, sitters, and mothers. They have large rose-combs, medium-sized, well-rounded wattles, yellow legs and beaks, red earlobes, and cuckoo-marked plumage, the ground colour being a light slaty blue, the marking or shading being of a dark slate blue throughout. Any mixture of red, white, or black is fatal, also single combs or feathered legs. Dominiques resemble the Rocks in many particulars, but are neither so large nor so perfect; they nevertheless deserve more extended cultivation.

The Scotch Grey.—This bird, which is the characteristic breed of Scotland, is now much more extensively bred than it used to be, and, on account of its size, the colour of its legs, its constitution, and general properties, it deserves more encouragement than it has received at the hands of English fanciers. The cocks weigh from 8lb. to 9lb., and the hens from 6lb. to 7lb. The Scotch Grey usually has a single comb, white legs—which are frequently a little mottled with a slate colour—and plumage almost identical with that of the Plymouth Rock and the Dominique, although the birds are generally of a much more brilliant metallic colour. The tail is flowing, and the general outline of the bird is somewhat similar to that of the

white Dorking. The greatest difficulty is to obtain a specimen free from patches of black or white, and this more particularly refers to the tail. The hens are admirable layers and sitters, and the flesh is highly esteemed. As a British race, and considering its quality, this variety deserves much greater encouragement than is given to it; but it is rather the custom nowadays to neglect home productions, and favour foreign breeds.

The Dumpy.—Occasionally a pen or two of small, exceedingly short-legged birds, are seen at exhibitions. These are not generally bred, but there are a few persons who still preserve them in their purity—rather, we should say, on account of their quaintness and originality than for any special properties they possess. These birds are called Bakies, or Dumpies, the latter word evidently being derived from the dumpy-like shape of the breed. The legs are so short that the bodies, as in the *Courtes Pattes* of France, almost touch the ground. The comb is single, and the plumage varies from a light grey to a cuckoo colour, resembling the Scotch Grey. In weight the birds vary between 5lb. and 6lb. They are vigorous, hardy, and fairly good winter layers; indeed, they may be considered profitable for their size, inasmuch as they are of considerable value for sitting upon the eggs of small and delicate fowls, such as Bantams and Hamburgs.

Sultans.—This pretty little bird was first introduced by Miss Watts. Although crested, we do not class them with Polish, on account of their feathered legs, five toes, and small size, the cocks not weighing more than 4½lb., and the hens 1lb. less. They are moderate layers of white eggs, cheerful and active, and non-sitters. The crest of the cock is large, round, flowing back, and composed of hackle feathers; in the hen it is globular, full, and close. The comb is simply two small horns, which should not be seen. The beak is



C. Britton

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white, the nostril cavernous; the beard thick, and running into the crest; the wattles are very small; the neck is thickly feathered, and gracefully curved; the back is broad and straight; the wings are large, and carried low, as in a Sebright bantam; the breast is full, and carried prominently forward; the tail very large, flowing, and erect; and the legs are short, vulture-hocked, and heavily feathered to the middle toes. Sultans are square in build, intelligent, and low in carriage. The crest, beard, and leg feather are the points most in request. The plumage is a brilliant white throughout.

Silkies.—These curious little birds form one of the prettiest and most novel varieties in existence. The Silky is often included in the Bantam class, but, although in actual weight the cock seldom exceeds $3\frac{1}{2}$ lb., and the hen $2\frac{1}{2}$ lb., its size far exceeds that of any ordinary Bantam, which may be attributed to the strange peculiarity of the plumage. It will be noted that the webs of ordinary feathers are connected together by a barb-like filament, but in the Silky they are totally unconnected, and thus give the soft silk-like appearance which has determined the name of the bird. Silkies are often called 'Negroes,' from the peculiar violet-black colour of their skin: it is worthy of remark that the bones are of a similar colour. The plumage is a straw-like white, and reaches down to the toes; good specimens are abundantly feathered throughout the body. The legs are short, the toes five in number; the comb purple and warty, and similar to that of the Malay in shape; the crest rises behind the comb, and is not too large; the wattles are purple, and rather short. Altogether, Silkies have a compact, Cochin-like appearance, and are one of the most ornamental varieties of our domestic poultry. They are fairly hardy, and, with good food and dry quarters, do very well, making capital sitters and good mothers. In this latter capacity they may be advantageously used to rear delicate

Bantams. The chief points are smallness of size, development of crest, toes, and foot feather.

Frizzled Fowls.—These are also a strikingly grotesque variety, but, like the Silkies, they are not very hardy, being very susceptible to cold or wet. The best specimens we remember to have seen were exhibited at the Birmingham Show in 1871, by a titled lady fancier, and noticed by the judges. The feathers, which are usually white, are frizzled throughout, and exhibit a wool-like appearance. The birds have single combs, and are decidedly small. As useful fowls they must be condemned, but as an ornamental and novel addition to the yard or show-pen they are surpassed by few.

Rumpless Fowls have no distinguishing characteristic beyond the very significant one, the want of a tail. There are several varieties, including Bantams, Game, and two varieties of Hamburgs, without mentioning the Cochin cocks often exhibited, minus tails once in existence. Neither variety is agreeable to the generality of fanciers, and few cultivate them. We recollect noticing four fine pens at Birmingham, but the judges did not consider such monstrosities worthy of remark.

The Azeel.—This variety is now much more popular in England than it used to be, and has been bred to a better type, although it is at times somewhat difficult to understand upon what lines the birds are judged, the prizes sometimes going to the smallest, and sometimes to the gamiest specimens. The Azeel is an admirable type of the real Indian game. It is small—midway between a Game Bantam and the Game Fowl in size—but close-feathered, very hard, and much heavier than it appears to be. The comb is preferably triple, or pea-shaped, the face moderately long and gamey, the back flat, the body wedge-shaped, the breast very broad, the tail small and light, and slightly drooping. The wings are well clipped up, and the legs strong, and of medium length.

In colour, the Azeel may be either black, white, black-red, or mottled, the last-named being the most gay plumage, although the black, which is of a brilliant description, is exceedingly attractive. The Azeel is a persistent pugilist, and the young birds are difficult to rear for this reason, as they commence to fight very early. It is useful upon the table, but an only moderate layer of tinted eggs.

Phoenix Fowls.—To German fanciers is due the credit of producing in Europe this magnificent variety. It is true that it exists in Japan, and that a pair were, some few years ago, shipped to Germany, but one of the birds died on the voyage, the other coming into the possession of Mr. Hugo du Roi, of Brunswick, who, by crossing upon the Yokohama and the Game fowl, and again crossing upon the half-breds, was enabled to bring back the special points of the Phoenix breed. Since that date other birds have been imported; but, nevertheless, to Mr. du Roi and Mr. Wichmann, of Hamburg, belong the credit of bringing the Phoenix fowl in all its feathery glory before the public. In shape it resembles a bird somewhat between the Azeel and the Game fowl; it is bred in a variety of colours—white, pile, and black-red. The peculiar point, however, is the length of the feathers of the tail, and the tail-coverts, which vary between 3ft. and 5ft., so that, when exhibited, special pens have to be made for their reception. Mr. du Roi exhibited a collection at the International Exhibition, at Hamburg, and, although a juror, was awarded the Gold Medal for his services to the poultry world. We have measured tail feathers of the Phoenix which were 5ft. in length; but, as will be imagined, considerable care is necessary to prevent them from being destroyed or broken while they are in process of growth. The hens, which vary from a wheaten to a partridge-brown in colour, are smaller and more slender than the Game fowl; and we have frequently handled pullets in

Germany in which the saddle feathers were as pointed and masculine as in the ordinary cock.

Yokohamas are a breed resembling the Phœnix in some respects, but, although they have an unusually full tail for a domestic fowl, they have no pretence to the extraordinary feathering of the Phœnix. They are short in the leg and long in the body, and in shape are something between a pheasant and the Malay. The breed has not, however, taken any hold of the fancy in England, and, indeed, it has not attained a sufficiently accurate standard to be recognised as an unusual or special variety.

Russians, or Cossacks.—We had frequently seen and heard descriptions of this breed, which seems to be pretty well known in America, but, until it became our duty to judge a number of specimens at the International Exhibition at Amsterdam, we had not before seen any birds of the variety. In colour they are a beautiful metallic black, and are medium in size, with dark legs, and with combs which are sometimes single, sometimes double, and sometimes cup-shaped. The peculiar feature of the race, however, is that the birds are heavily bearded and whiskered, but have no crest. They are extremely hardy, and fairly good layers and sitters, but the flesh, although considered to be rich, is somewhat too yellow for modern fanciers. The breed is worth encouragement, although we question very much whether it is necessary to go abroad for specimens, inasmuch as the whisker and beard could be produced with the greatest ease.

The Ramelsloher.—This is a German breed, of considerable value, and is largely exhibited in Germany, Austria, and Denmark. It is generally found in two varieties—white and buff. In form this bird somewhat resembles the Minorca or the Andalusian, but is a larger fowl, square in shape, with a single comb, exceedingly white ears, and fine blue legs. Its constitution is very hardy, and it is recommended as being

one of the best layers of any known race, and not to be despised upon the table. This variety, like the Leghorn, or Italian fowl, is greatly patronised by Continental breeders, who have an eye rather to the useful than to the specially fancy fowl.

Gangegor Gallus Furcatus.—This is the title of the most extraordinary-looking fowl we ever saw. The specimens in question were at the Gardens of the Zoological Society at Antwerp, and as veritable fowls they may find a place under our ‘any other variety.’

The comb of the cock is single, very small, and lopping over to one side; at the base it is light blue in colour, darkening half way, and approaching purple towards the points. The face is red, the eye bold and very wild, and the head long and narrow. The wattle, for there is *only one*, hangs from the centre of the lower mandible, and is of a most extraordinary colour. It is long, a bright yellow at the back, running into a rich crimson in front; while the bottom edge is a light purple. The hackle, unlike that of most male birds, is composed of round-tipped feathers—not ordinary *hen* feathers, but such as give the neck a scaly appearance, the ‘scales’ falling evenly and profusely as far as the middle of the back, meeting the saddle, which is also composed of these peculiar feathers; they are of a light gold colour. The wing is a rich, deep, gamey orange red; the tail a rich, lustrous metallic black; the flight feathers black, and the legs a light flesh colour. In shape, the cock is somewhat similar to a pheasant, but much longer in the leg, and decidedly belonging to the crowing tribe of chanticleers. His neck is short, back round, and tail drooping. The hen, unlike the cock, somewhat resembles a pheasant in shape as well as general colour; her tail is short, but her size and symmetry agree more with that of the pheasant tribe. The cock weighs about $3\frac{1}{2}$ lb. to $4\frac{1}{2}$ lb., and the hen 1 lb. less.

Wyandotte.—This is another of the new breeds of poultry which have been manufactured by the fanciers of America, and without going so far as to say that the birds are of the highest excellence as layers, or upon the table, or that their appearance is, so far as form and plumage are concerned, unique, we know this much—short as has been the time that the fowls have been in England—that they are unlike any other variety, and their economical properties are at least equal to those of the majority of the best breeds. An attempt appears to have been made to fix upon a large, useful bird, with laced feathering, somewhat resembling that of the Polish, and so far this attempt has been fairly successful, although the colour of the bird is by no means equal to the marking. The plumage is white, and is heavily laced with black, more especially the breast. The tail is black; the outer edge of the wing primaries light, the comb rose or double, small, provided with a well-defined spike, and fitting close upon the head; the beak is a darkish brown; the face and earlobes, red; and the legs, yellow, and free from all feathering. It is claimed for the Wyandotte that it is hardy, and, while maturing early, has flesh of a superior quality. The hens are first-rate mothers; the chicks can be raised with great ease; and, on the whole, the birds seem to be well adapted to the climate of this country. In America the standard weight of the cock is $8\frac{1}{2}$ lb.; hens $6\frac{1}{2}$ lb.; cockerels $7\frac{1}{2}$ lb.; and pullets $2\frac{1}{2}$ lb.



CHAPTER XV.

TURKEYS.

THIS useful, ornamental, and profitable bird is cultivated much more extensively than it used to be. The varieties at present in England are the Common Turkey, the Cambridge, the Black Norfolk, and the American, the last-named being chiefly found with crosses of the British varieties.

The **Common** Turkey is easily dispensed with. It is usually a mongrel cross between the Norfolk and Cambridge, and is allowed to degenerate in size and constitution. Worthless for the table, generally liable to disease in chickenhood, it is a good example of what a grand breed will become when judicious crossing is neglected.

Of the **Cambridge** there appear to be two varieties, the bronze and the grey, or copper-coloured. The latter are considered the hardier, and are generally larger than the bronze, although not so much admired. The cocks often reach 35lb. at two years, and the hens 20lb.

Norfolks, from their inferiority in size, are seldom exhibited. Their plumage and legs should be a perfect black. For the table they are, perhaps, superior to any variety, the flesh being particularly white and delicate, and the quantity of bone small. During the past dozen years the Cambridge and Norfolk breeds have been more or less crossed, and are not found in such purity as formerly.

The large **American** is, in size, far ahead of any other

Turkey to be seen in this country. It was first exhibited in England, at Birmingham, in 1870, and took first honours, the birds shown having previously been similarly distinguished at various shows in America. The plumage is a magnificent bronze, each feather ending in a broad, rich black stripe. The head is long and broad; the tail black, irregularly striped with brown, and ending in a greyish bronze; the wing bow black, with bronze reflections; the wing coverts rich bronze, the feathers terminating in a wide black band, the wing when folded having a broad bronze band across, divided from the flight by a glossy black ribbon-like mark, formed by the ends of the *coverts*, which are a dull grey where overlapped, shading into a brilliant metallic blue-black, and ending in a wide brown band, the black part being crossed by two or more very narrow pencillings of brown, and a distinct narrow pencilling of jet black between the blue and brown end. Such is the American standard as regards the wing. The legs are nearly black. The colour of the hen is similar to that of the cock, although not so rich. The breast is brown, the feathers edged with light buff, divided from the brown by a black band. Less than 30lb. for a cock, and 18lb. for a hen, or any white in any part of the plumage save the wing, is considered a disqualification. The call is distinct from that of the Cambridge, and can be heard at a great distance. The old birds above-mentioned as having taken the Birmingham prize became the property of Mr. F. Lythall, of Banbury, and attained the enormous weight of 68lb. The cock, in breeding condition, weighed 40lb., and won at all the leading exhibitions in England.

In selecting breeding stock, the cock should be a fine, healthy, perfect, and, above all, a *young* bird, certainly not exceeding two years. He should have plenty of bone, without which great weight cannot be obtained. If correct in feather, long and straight in the breast, and not too high on the legs,

he should produce valuable stock. Such a bird Mr. Lythall used to mate to eight or ten hens, weighing from 12lb. to 15lb. each, larger ones constantly breaking their eggs, and being more liable to crush the young chicks. Turkeys lay, commencing in March, from ten to sixteen eggs, and will cover the latter number. It is never necessary to prepare nests, as each hen selects her own; and she should never be molested. The sitting lasts from twenty-eight to thirty days, the cock keeping a sharp look-out, and preventing anything disturbing his hens; he has even been known to take his place on the nest when the hen came off, and it is believed that, if allowed, he would have hatched the young, which at all times he is proud of brooding, always taking the greatest care of them. When hatched, the chicks should be well nested before removing to a warm, dry pen. First give the mother as much ordinary food as she can eat, afterwards supplying the chicks with prepared food. Mr. Lythall used to give coarse oatmeal, well steeped, hard-boiled egg, and bread soaked in ale; also, what is considered capital food, chopped onions and nettles. As they get strong, coarser food may gradually be given, until the egg is discontinued entirely, and corn introduced. Malt is considered very beneficial. During the day the pen should be put upon clean, dry ground; it should be moved daily, and well sheltered from the wind. The water must always be perfectly clean.

In damp seasons, numbers of young turkeys die from cramp; when seized, the feet should be dipped in, or rubbed with, spirit until quite warm, when the birds usually recover. Gapes, however, is the most dreaded epidemic, and often carries off whole broods; how the worms are introduced into the windpipe cannot be ascertained, but the difficulty is to remove them with safety to the chick. Some are killed by the fumes of carbolic acid. This experiment requires great care, as, if the bird inhales the gas too long it will die

whereas an insufficient quantity fails to kill the worm. Five to eight seconds is generally a sufficient time to submit a young bird to the fumes. Some breeders introduce a barbed feather into the trachea, and bodily remove the obnoxious parasites. Roup, discharge from the eyes and nostrils, is caused by cold, damp, draught, or overcrowding. The best course to follow is to kill the infected bird, or the disease will attack the whole brood ; remove the birds to fresh ground, and feed with a stimulating diet. Many chicks die at the period of 'throwing the red,' but if they pass this stage they are generally considered safe.

Size is a great desideratum in breeding Turkeys for market, as in London a bird of 25lb. would make 1s. 4d. to 1s. 6d. per lb., while one of 12lb. would not make more than 10d. to 1s. per lb.

When two hens hatch together the chicks may be given to one mother, and the other will soon lay again. If a hen is required to sit at a given spot, she may be removed, and placed upon false eggs at night, fastened on, and left for two nights, when, after feeding at liberty, she will generally go back to the nest.

Many English writers and American breeders advise breeding from old birds, but, in the face of Mr. Lythall's success, his system must surely recommend itself, and young birds only be retained for stock. Turkey eggs are seldom infertile, and the chicks, therefore, usually hatch in good numbers.

For fattening, the birds should be confined, and fed upon potatoes and meal, mixed with skim milk, ground oats, barley meal, or buckwheat meal, mixed with suet, and worked into a stiff paste with milk. A short time will suffice to put on a quantity of delicate white flesh.

CHAPTER XVI.

THE GUINEA FOWL.

THERE is certainly no variety of domestic poultry of which so little has been written, and, we might almost add, of which so little is known, as the Guinea Fowl. The fact is, that authorities upon poultry matters have seldom or never had personal experience of the breed, and that fanciers, who have conveyed in the past so much information to the journals devoted to poultry matters, prefer birds which are regularly patronised by poultry committees, and for which prizes are offered. As Guinea Fowls are rarely seen at exhibitions, on account of the absence of classes, and as this same absence prevents their being more generally owned, we hear little or nothing about them. In country houses they are frequently kept for the supply of eggs, and for the table; but in these cases there is not very often any special fancy for poultry, and their culture and management are left to the tender mercies of a poultry-woman or one of the men engaged upon the premises. Naturalists have written far more about the Guinea Fowl than the more practical poultry breeders, but the information they convey is mostly with reference to its origin and its physiology, rather than to its value as a domestic fowl. It appears to be tolerably clear that the bird is a native of Africa, but it has spread to other parts of the world, and is found in three distinct varieties, which may be described as the Crested, the Plain-headed, and the ordinary Guinea Fowl as we know it in England, which is provided with a coruscation or knob upon

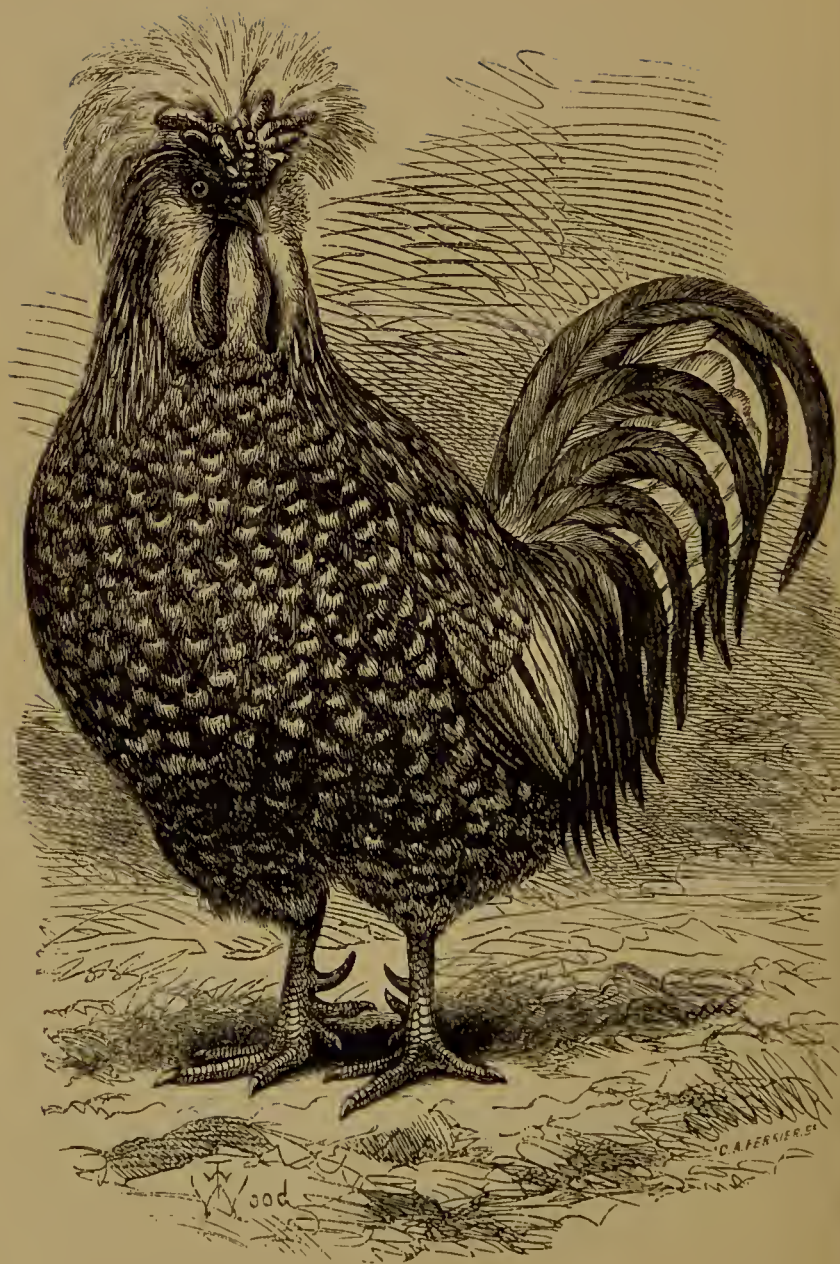
the top of its head. The peculiarity of the first-named variety is, as its name denotes, the crest or bunch of feathers upon the top of the head. The plain-headed variety, which is known as the Vulturine, is more striking and original, as compared with the common Guinea Fowl, on account of the greater length of its neck and tail. It is beautifully variegated with white spots and black markings upon a ground colour of dark brown, which in some parts run into a dull black, the breast and flank being of a lustrous metallic blue.

The ordinary Guinea Fowl, which is tolerably well-known to all who are interested in poultry, may be described as follows: The ground colour is of a dull, purple-like hue, and this is covered throughout the entire body with white spots, regularly placed, and varying in size as they approach the extremities. Classes have on some occasions been provided at exhibitions for Guinea Fowls, when the apparent general perfection in the marking of the birds is at once seen to be quite the reverse when they are placed side by side. The majority of the birds, as might be expected where breeding is almost promiscuous, are badly marked, and cannot compare in this point with a really first-rate specimen, which should be absolutely even and pure in colour, and spotted over the entire plumage regularly and evenly. In some of these competitions, too, we have noticed white Guinea Fowls, which are exceedingly attractive, unless they are, as is sometimes the case, patched with colour. The coloured birds, in the same way, are frequently mis-marked with white, the spots also either running into each other or actual white patches appearing upon some parts of the body. It is almost needless to say that such birds are quite useless for exhibition purposes. The head of the Guinea Fowl is almost unique. It is provided with a coruscation or horn, which is inclined backwards, and which is slightly larger in the cock than in the hen; the wattles are red, and are connected with a red patch, which

grows over the nostrils ; while under the eye, and down the side of the face to the throat, are patches of white ; the beak is yellowish, the neck clear ; and, at the back, running up towards the head, is a thin mane of feathers, which grows upwards. The legs correspond in colour with the body ; and the tail, which is short and tapering, is inclined downwards. The shape of the body itself is not unlike that of an egg, which is similarly large at each end. There is generally some difficulty in discriminating between the sexes, but it will be found that the peculiar shrill note which is characteristic of the breed is made only by the hen. The cock is a little more developed in the head ; he frequently calls the hens when he finds a rare morsel of food, and plays up to them in a manner which somewhat resembles that of the cock pigeon. Guinea Fowls are particularly cruel to other poultry, the cocks more so than the hens ; and when they have been turned down in coverts—a life which they like—they soon destroy the pheasants, and do not replace them as game, for, when required to rise to the gun, they prefer to run, which they will do even before dogs. In commencing to keep Guinea Fowls, it is the best plan to purchase eggs in March or April, and to set them under hens, first, because the Guinea hen herself seldom sits until harvest, which is too late to rear the young birds, especially as they are somewhat delicate ; and next, because it is generally found that newly purchased specimens either decline to stop at home, or that, in their well-known roaming habits, they select nests in the most secluded places, and their eggs cannot be found. The eggs of the Guinea Fowl are small and very dark cream in colour, the hen frequently laying as many as eighty in a single season. For breeding purposes, although it is claimed that Guinea Fowls are monogamous, it will usually be found safe to put three, or even four, hens to a cock. The hen sits twenty-six days before she hatches, and the chickens, when hatched, are a rather dark brown in colour

and boldly marked ; their legs are red, and they resemble game rather than poultry. We have known breeders who, by the purchase of eggs and unwearied attention to the young (which, unlike chickens, should be fed for a long time very constantly), have rendered them so tame that they have not only been induced to lay, but to roost, in houses which were provided for them. A Guinea Fowl's house should be something like a pheasantry, entirely secluded, provided with very high perches, and with nests which resemble as closely as possible those which they make in the hedges. As a rule, Guinea Fowls prefer to roost in trees, and it has been truly said that they make admirable watchers, calling lustily at night when disturbed by anyone. But for their habits of straying and laying away, and their pugnacity, they would undoubtedly be kept much more extensively than they are. In feeding the young chickens, as much care should be taken as with young turkeys, animal food in different forms being regularly supplied ; and we know of nothing better than maggots or mealworms. When a Guinea hen lays in a nest which is provided for her, the eggs should be removed as fast as laid, one, however, being always left behind ; for if she is allowed to lay a number, and they are then removed together, she will certainly forsake the nest entirely. Of late years more Guinea Fowls have been sold in the London markets than formerly ; they are plump, and the flesh is white, tender, and exceedingly delicious, the more so when the birds are reared under the conditions which they select for themselves. We do not believe, however, that they will ever be reared so extensively as ordinary poultry, for they do not readily lend themselves to the aim of the breeder.





HOUDAN COCK.

MANAGEMENT OF THE POULTRY YARD

CHAPTER I.

THE EGG—INCUBATION—HATCHING.

WITHOUT describing in detail the scientific composition, or stating at length the minute organisation, of the egg, it will be sufficient for our purpose to mention what is most desirable for all poultry breeders to know in order to the accomplishment of successful incubation. The shell, frail as it may seem, is built upon one of the most beautiful systems of Nature, and is so strong that, as is generally known, when subjected to particular pressure, it almost defies the strength of man. It is porous, and, being thus liable to the action of the air, staleness and waste are accounted for. The shell is lined with a membrane, between which and a second membrane, enveloping the white, is the air cavity. It is when, by accident or want of attention, these membranes become glued or joined together during incubation, preventing the influx of air—which should be plentiful in the air cavity, and the oxygen of which is the life of the embryo chick—that the poor little bird is suffocated, and causes both disappointment and loss. There is a third membrane, which encloses the yolk, in the centre of which is a little chamber, connected by a passage or duct with the germinal vesicle. The minute organisation of this vesicle renders it utterly impossible for any discovery to be made as to the presence of the germ before incubation, more especially when we consider the opacity

of the shell and the two membranes ; therefore, in defiance of all theories which profess to proclaim, not only the fertility or non-fertility, but the sex, of the future chick, it may be accepted as a physiological fact, which should be distinctly authoritative, that such a determination is not only impossible, but utterly at variance with the laws of Nature. Equally absurd is the assumption that the sex can be predicted by the position of the air-cell or the shape of the egg. The important office performed by the former, as has been inferred, is to sustain the life of the embryo within the shell ; and, as the chick grows, so does the air cavity expand, by the natural evaporation of the surplus moisture within the egg. The position of the cavity is immaterial ; when the egg is new laid it can scarcely be detected, but if exposed to the air it gradually enlarges. With regard to the shape of the egg, it may be sufficient to state, that the shape of the yolk, containing the *germinal vesicle*, is determined *before* it is enveloped by either the albumen or the shell ; hence, as the vesicle can have no complicity with, or effect upon, the remainder or conformation of the egg, it is safe to deny the possibility of actual prediction. Indeed, bearing these facts in mind, the person who allows himself to be deluded into the belief that the future sex, or the fertility of an egg, can be foretold, cannot be complimented upon his ability to reason.

In selecting eggs to place under a hen, care should be taken to reject ill-shaped, dirty, or greasy ones ; they should be reasonably fresh, not more than ten days or a fortnight old in any case, and selected from healthy hens. Although we do not advise the rejection of eggs slightly misshapen, having set them with success ourselves, yet, if much distorted, or miniature in size, they should be decidedly avoided. We say miniature, for abnormally small eggs, minus either yolk or white, are almost as frequently laid as large or double-yolked eggs. In explanation of these monstrosities, it may be mentioned

that, when the oviduct is excited, or particularly active, and the yolks, from various causes, are immature, the superabundant white passes through the duct, and is enveloped in a shell suitable to its requirements, thus causing the small eggs so well-known to every fancier. On the other hand, if the yolks are in a high state of maturity, it is often the case that two become simultaneously disengaged from the bunch, and, in their passage through the oviduct, are enveloped with the white and shell in a similar manner. These are the 'double-yolked' eggs. In some cases a mature yolk passes through the oviduct before Nature has supplied the white, and in others the shell also, the result being a diminutive egg, containing yolk only, or a shell-less yolk.

The number of eggs given to a hen should be regulated by their size, the size of the hen, and the temperature. In January and February, Brahmas and Cochins may have eleven to thirteen large eggs, other varieties from seven to eleven; but from March, the Asiatics may readily be entrusted with from thirteen to seventeen, and the other breeds, eleven to thirteen. Hens when broody vary considerably, some taking to any nest with avidity, others require much coaxing; the latter are better moved in the dark, and imprisoned on the nest, with a basket or hamper placed over them. Others, again, refuse to remain in any nest but that of their choice; these are better left alone, or, as is often the case, a valuable clutch of eggs may be partially or entirely destroyed.

It is, perhaps, necessary to describe the signs of broodiness in the sitting hen, inasmuch as numbers of persons commence poultry-keeping who do not know even thus much in connection with the work they take in hand. When a hen desires to sit she usually remains upon the nest throughout the day, and distinctly objects to being disturbed. The broody hen must not be confounded with the hen which remains upon her nest in order to lay. In the

latter case, a peck will probably be the only movement exhibited; but should she be broody, she will make the noise peculiar to the sitter when interfered with. She will also erect her feathers, and, by a rocking or shaking movement of the body, settle herself more closely upon the egg or eggs which are beneath her. The sitting hen, too, frequently pecks the hand of the intruder pretty severely; but it is of no use to be afraid, for, in ninety-nine cases out of a hundred, no harm will accrue if the hand is put boldly beneath her, whereas, if withdrawn quickly, it is quite possible that she may inflict a wound and draw blood.

If possible, the sitting hen should be removed from the other fowls, and her nest made of straw, upon the ground, in a properly constructed nest-box. If, however, the nest is prepared in any other position, it should have a freshly cut turf at the bottom. The hen should be fed once daily, with a little barley or barley meal, clean water, and a few blades of grass; and I would remark that regular attention should be bestowed upon her in this respect. A healthy, well-fed bird will often grow fat during her three or four weeks' rest, and, if necessary, be ready and able to sit again without the slightest ill effect. After the expiration of a week or eight days, especially if two or more hens are sitting for the same period, the eggs may be examined to test their fertility. Clear eggs, which appear exactly like new-laid eggs, may be discovered by holding them before a bright light, and shading with the hand, or before a card in which a hole smaller than the egg has been cut. These should be removed, and, if the number has been materially reduced, the fertile eggs may be all placed under one or two hens as the case may be. When eggs are thus examined by a beginner, he will find it easier to compare each with an absolutely new-laid egg. From this time, if the atmosphere is very dry, it is advisable to moisten the eggs daily.

There is one point in the examination of eggs which have

been sat upon which deserves notice. We have found that, in those which are fertile, the line at the top, which is the division between the solid matter below it and the empty space above, is more or less sharp, according to the state of the embryo chick. If the line is dull and uneven—if, in fact, it cannot be traced clearly—the chicken is generally dead. On the other hand, if it is remarkably sharp and plain, the chick is usually alive and vigorous. There are distinct reasons for this, which will present themselves to the mind of any thinking person. It is almost impossible for a mass of semi-liquid matter, which is uneven, and covered with films of skin which are more or less puffed with air, to be clearly distinct; but the solid body of the chicken, when alive, is quite different, and causes a line which is far more sharp and distinct than in the case we have referred to. Whether the line is straight across the egg, or runs from one side to the other, in an upward direction, matters nothing at all; it merely shows the position in which the chicken lies, and is no sign either of life, vigour, or sex.

If, as sometimes happens, any accident should cause the breakage of one or more eggs, those tainted with the *débris* should be immediately and carefully washed with warm water, and placed under the hen, in a clean nest, as quickly as possible. A slight fracture, however small, is, as a rule, fatal to success, the exceptions being a few cases where, by a judicious ‘plaster,’ the usual result has been prevented. This is accomplished by gumming over the fracture several layers of tissue paper, which accommodate themselves to the shape of the egg better than any other material. In case of fracture at the small end, the bottom of the egg may be covered by half the shell of another egg, and allowed to remain until hatching. It sometimes happens that a hen forsakes her nest, or she may die; indeed, there are many depressing circumstances which cause a valuable sitting of eggs to be left for hours

together, or perhaps wholly lost. In the former case, it is often possible, if the hen is simply excited, to induce her to return to the nest, or, in case of her total loss, to obtain another with sufficient haste. It is simply ruinous to treat her harshly—great perseverance and coaxing are necessary. But if she absolutely refuses to take to her eggs, place her gently on the nest, and cover her with a small basket, or, if possible, some article resembling as near as possible a large dish cover. If it is wished to break a hen of her desire to sit, in which it is not only natural but wise to indulge her at least once during the year, she may be removed to a run away from her favourite nest, placed under a coop, and fed on lower diet.

It is very important to know exactly what to do with eggs when they have been forsaken by a hen after having been sat upon, or when, from the death of, or other accident to, the bird, they have become cold. It has been shown by Mr. Howell, who made some very useful experiments with the incubator, that it is quite possible to place eggs in the machine, and to start them into life, until the germ can be distinctly seen, by means of a strong light, and then to take them away until they are required for hatching. There appears to be no doubt about this fact; hence we may assume that a living embryo, in its earliest stage, can be kept alive at a low temperature. This fact we have found supported by experiments of our own. Having taken notes of the effect of temperature upon eggs which had been abandoned at different stages of hatching, we have ascertained that, as a general rule, forsaken eggs rapidly 'die' when they have been sat upon from eight to twelve days; in other words, the nearer the period of incubation gravitates towards the half time, the more delicate are the eggs to deal with, and the less can they stand a change of temperature. Near the beginning, and towards the end of the period of incubation, however, eggs in which there are living embryos will stand a great deal. There

are plenty of cases of successful incubation under such circumstances upon record; and although these have been for years discredited, the fact could be proved by any ordinary individual by the simplest possible experiment. Eggs which have been sat upon a day or two, or for nineteen to twenty or twenty-one days, will stand a considerable amount of change in temperature, and should, therefore, never be abandoned because they are cold from having been forsaken.

Hatching, in all favourable cases, commences on the evening of the twenty-first day, and it is not unusual, when visiting the hen on the following morning, to see half-a-dozen or more interesting little heads peeping from amongst the feathers of the mother hen. On such occasions, the natural desire of the amateur is expressed by the usual exclamation of our younger admiring friends: 'Do let me take one!' followed by an assurance that it shall not be hurt. Unless actual necessity compels the removal of any chicks—which proceeding many hens most violently resent—it is far better to leave them alone until their removal to the coop.

Should any of the eggs remain unchipped when the majority have hatched, they may be tested in the Cornish fashion, by placing them in a bowl of warm water: bad eggs will immediately sink, whereas those containing chicks will float on the surface; among these latter, the eggs containing living chicks will move or dance in the water, while the still or silent eggs generally represent dead chicks. An egg which, at the expiration of twenty-one days, palpably flops in the shell upon being shaken is either addled or infertile.

If it is considered necessary to mark the eggs, showing the dates of laying, this should be done in ink, at the small end. As the chick makes its exit at the large end, the great body of the shell is left intact, and the writing at the small end is undefaced.

There are many instances, during a dry season, when the

lives of valuable chickens may be sacrificed for the want of assistance whilst hatching. Should it appear clear, therefore, that the little creature cannot free itself, the egg may be gently cracked on the side of the large end; or, if chipped, the fracture extended, and the shell gently peeled off, carefully avoiding tearing the skin or membrane. The egg should then be freely moistened in warm water, enveloped in wet flannel, and placed in an oven, the temperature of which has been regulated to from 100 degs. to 103 degs.; continued moistening will gradually soften the membrane, from which the chick, strengthened by the heat, will finally struggle. Once free, it will soon cast off the little sheaths which encase its soft down, and develop into the tender little creature which is the delight of the young, the pride of the novice, and the hope of the amateur.

At this time, when so many eggs are bought and sold, it must be unusually interesting to know the results of the various methods of packing. Many years ago we usually adopted the hay and hamper plan, and that with great success excepting in a few unaccountable instances, but probably owing to the hampers having been tossed into the train by a careless porter. Subsequently we chiefly used boxes, 14in. by 8in., and about 4in. in depth, such as may be purchased at the grocer's. The strong recommendation of various eminent fanciers was sufficient to induce this trial, which may be described as varied, so far as its results are concerned. In some cases we have used chaff, in others bran or sawdust. The packing is managed as follows: First lay the chaff 1in. deep, then place a piece of paper over, to prevent the eggs coming to the bottom; on this lay the eggs, sufficiently wide apart, fill in, and cover to an inch with chaff or sawdust; lay another piece of paper, and finish with chaff. The packing must be moderately tight, and the lid may be tied down, or Paris points forced through, carefully avoiding any use of the

hammer, which might endanger the fertility of the delicate germ. Every egg should, before packing, be wrapped in paper, and the ends squared, to prevent concussion. The results of this method, so far as our personal experience is in question, is not a test of its utility, as, in some cases, in which eggs have been forwarded long distances by rail, large hatches have occurred, whereas eggs sent *by hand* for our own hatching have failed in several instances to yield 30 per cent. Since the above was written, we have adopted the system in many hundreds of instances, and have found it most successful, eggs having hatched when sent to America. American fanciers are ingenious in their modes of constructing egg packages ; in fact, the distances from State to State in that continent necessitate especial care in packing. We have received various lots of eggs from America, all of which were splendidly packed, all that thought and skill could do having been done. In one case, the package was a box heeled or cornered with leather to prevent jarring, and the inside lined with a dried grass, of an elastic nature, to the depth of nearly 2in. Within this space were the eggs, wrapped in paper, and *each placed in a separate cardboard box*, these boxes being divided from each other by sawdust. A handle was fastened to the lid, which was firmly *screwed* on. In another case, a basket was used, and the eggs were packed in hay, sawdust, paper, and *wool*. In packing in a basket, the eggs are first wrapped in paper, and afterwards in moss or hay ; they are next embedded in hay, the basket filled, and the cover sewn down.



CHAPTER II.

REARING AND FEEDING.

THE hen and chickens should be left alone for a few hours after the hatching is completed, as the chickens, being sustained by the yolk which is drawn into the system upon their exit from the shell, and the hen all too busy with her young charges, require no immediate attention. When, however, the removal to a coop takes place, they should be fed with egg chopped fine, the shell included ; this, with skimmed milk to drink, should form the staple food for the first few days. Some persons maintain that chickens do not require drink, but, as they evidently enjoy it, we prefer to give it, and in a beneficial form. New milk does not suit them, but we have had capital results from skimmed and sour milk, which we have also seen largely used with success in Germany, as it is in Ireland. It generally happens that the hen eats voraciously, and makes her first meal nothing less than a feast ; therefore, before providing the chicks with their delicate repast, it is well to give the hen an ample feed of corn or meal, or, instead of calling her little ones, she—obeying the natural instinct, hunger, induced by excessive and perhaps long abstinence—may demolish the whole, much to our chagrin. If the weather is fine, dry, and warm, the coop may be placed upon a dry gravel path during the day, and removed to a warm dry house at night. Although hay and straw are recommended as suitable materials upon which to place the coop, it will be found both cleanly and healthy to allow the little family to roost upon

the dry floor of the house, more especially if it be composed of dry sand, or that desirable mixture, used in many poultry houses—lime, sand, and fine earth, sifted and mixed in equal proportions. This *looks* clean; it may be kept so by the simple use of a rake, and it provides one of the finest ‘baths’ for the old birds to dust themselves. The coop should be placed upon a different spot daily, whether in the garden or the chicken house. Nothing conduces so much to the germination, and, we may say, ‘incubation,’ of disease, as foul or tainted air; and if the chickens are constantly cooped upon the same spot their little delicate systems cannot breathe so near the soiled ground without an injurious result. There are many varieties

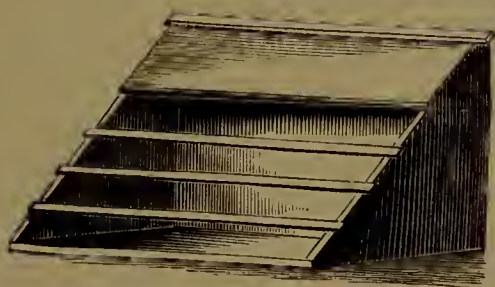


FIG. 1.—Sussex Coop (Old Style).

of ‘coop,’ all of which have their admirers and advantages. First of all, we will select the simple, old-fashioned Sussex coop (Fig. 1). These may often be seen by the roadside, covered over with an old sack, the chicks being left all night without fear of danger or disease, the variety, moreover, being the so-called delicate Dorking. The coop has no bottom; it is sheltered at the back, top, and sides, and plainly barred in front. Some breeders make a door, or sliding bar; but we think the simpler it is the better, and the less costly.

Fig. 2 is a modification of the same coop; there is a flap, which folds up at night, and can be made to reach as high as thought desirable. The birds, too, are more easily reached by means of the sliding bar. This coop can be made with a

bottom, or, on a fairly dry soil, it will be quite sufficient to adopt the folding board, and to lay bricks round the bottom at

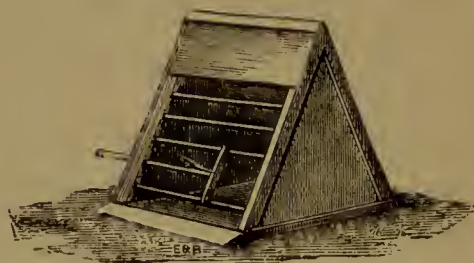


FIG. 2.—Sussex Coop (New Style).

night, as a protection against rats. It is one of the coops made by the West Surrey Poultry Co.

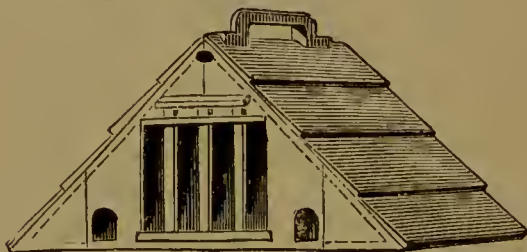


FIG. 3.—Coop.

Fig. 3 represents a very simple and somewhat elegant contrivance, and one which may be depended upon for all

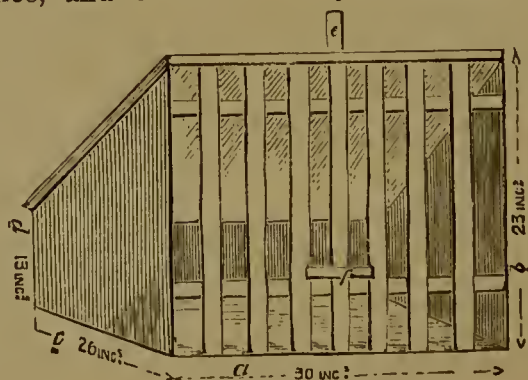


FIG. 4.—Simplex Coop.

weathers especially if covered by a sack in the front ; it may either have a bottom of wood or none at all ; we prefer it without.

Fig. 4 (Simplex) is a plain, useful coop, but not so proof against severe weather as the others. It will be seen that the middle bar (*ef*) is movable. It is 2ft. 6in. wide at front (*a*), 1ft. 11in. at front (*b*), 2ft. 2in. deep (*c*), and 1ft. 1in. high at back (*d*). This coop has no bottom, and may be made, and well finished and painted, for 5s. to 6s.

Fig. 5 represents a coop and run combined. For very young chickens this is a capital but somewhat expensive plan. The



FIG. 5.—Combined Coop and Run.

chicks, if well fed, may be left in any part of the garden without fear of damage to the beds, or danger from cats or vermin, while at the same time you reap the advantage of a grass run. This is the plan which Mr. Harrison Weir adopted with signal success in rearing his Game and Dorkings.

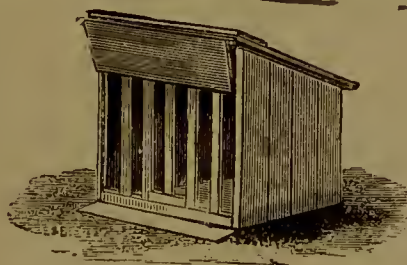


FIG. 6.—Improved Coop.

Fig. 6 is a modification of the coop shown at Fig. 4, which breeders will sufficiently appreciate in very hot or wet weather, the piece of wood across the front, at the top, acting as a protection against both. There is also a flap at the bottom, which is some protection, and which, when opened out, acts as a bridge for the chickens to enter the coop. This coop, as well as that shown at Fig. 8, is made by the West Surrey Poultry Co., Worplesdon.

In Fig. 7 (a design by Westacott) we have the same coop made with a front, which can be raised or lowered at will.

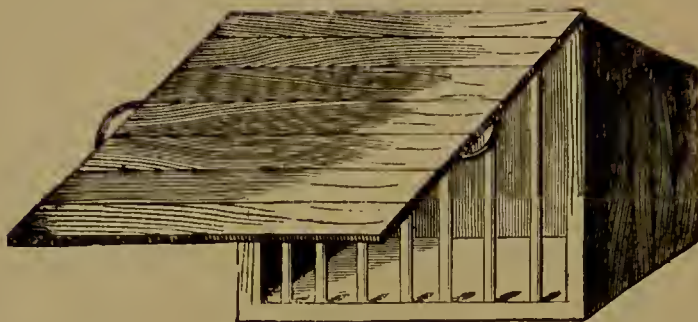


FIG. 7.—Westacott's Coop.

This acts both for the purpose of shutting up the coop securely, and as a protection against the elements.

Fig. 8 is a useful coop; it is provided with a sliding bar. But we think it is much easier to reach the hen or chicken

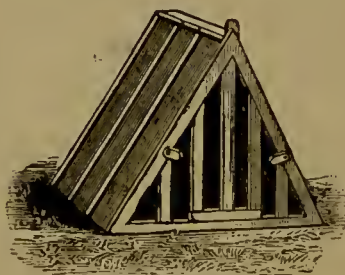


FIG. 8.—A Useful Coop.

from the side, in which, when the wood is nailed crossways and lapped, an opening is easily made. This mode of access is especially useful at night, when the front is secured, and the birds are roosting in the far corner of the coop. In this coop a triangular shutter fits into the front, and is secured by means of the two buttons.

Fig. 9 represents the same coop more elaborately finished. The top portion is enclosed, and furnished with a door, so that the birds may be reached, while the lower portion may be

securely protected at night by raising the small platform. This is a capital coop for protecting the chickens.

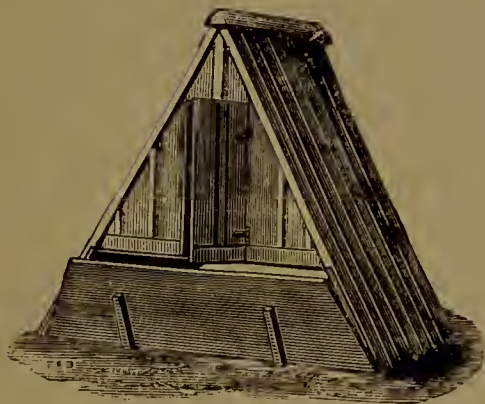


FIG. 9.—Safety Coop.

Fig. 10 is intended for the actual confinement of young chickens. The roof may be of glass or wire work, to be protected, during wet weather, by any waterproof material. One end has an opening, which is secured with wire netting; but

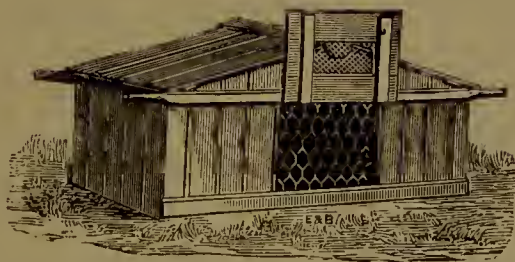


FIG. 10.—The West Surrey Poultry Co.'s 'House' Coop.

this is covered by a door at night. There are handles, to enable two persons to remove the coop when the ground it covers has become tainted. It may be modified in various ways, to contain a hen, or to enable chickens to run in and out at pleasure.

As the chicks grow the food may be varied considerably. Want of thought in feeding is, in many cases, the cause of non-success. It should be remembered that, to gain size, it is not *fat* that is required so much as *frame—bone*; therefore,

although stimulating and forcing foods are very useful in bad weather, or as an occasional diet, if used too freely the chicken matures, and *sets* too early, when the frame ceases to expand. When procurable, curds will be found an excellent article of diet; they contain a very large proportion of nitrogen—a flesh-former. It will, therefore, be seen that new milk—which contains, in addition to the curds, a large proportion of fat—must be, as it is in custard form, a most beneficial food, protecting the little featherless bodies of the chickens from the ill effects of cold and rain; but given alone to drink it is too rich. Rice boiled in *skim* milk, and, what we find a very valuable food, *macaroni*, boiled and chopped, will be found excellent for starting the growth of young chicks. A little cooked meat may be occasionally given, and by degrees groats, boiled and raw, broken wheat, and buckwheat may be introduced. From the very first barley meal and ground oats will be found beneficial if stiffly mixed.

We are not, as a rule, disposed to favour a constant use of spiced or stimulating diet, believing such to be inconsistent with the universal laws of Nature. By the continual use of a stimulant the system becomes thoroughly insensible to it, and ceases to receive that benefit which it derives from an *occasional* introduction. Of the efficacy of the occasional use of these foods we have had ample proof; the testimony of many well-known breeders, and our own experiments, fully endorse the above remarks. Some breeders are in the habit of compounding mixtures themselves. We have several recipes, but a resemblance exists among all, those published in various works, and those unpublished, being very similar, and nothing more nor less than concoctions of well-known stimulating spices, such as fenugreek, aniseed, gentian, cayenne, and pimento, mixed with large proportions of maize and other meals.

Intermediate feeding, or that between the early period,

when the young birds consume chopped eggs, groats, rice, &c., and the later period, when they are given maize and other whole grain, and meal mixed into a stiff dough, is a subject which ought to be distinctly referred to, as it sometimes happens that fanciers break off the first food too sharply, and put the delicate young birds upon a coarser diet without sufficient care, and without, as it were, using a halfway house. We believe there is nothing better for use as a portion of the food, from the very earliest to the latest stage, than grain, and, as the young birds are able to peck it up, we would give them wheat, and, if their life is an active one, the more they consume the better it will be for them. As the more delicate diet is broken off, oatmeal may be introduced, but the meals should not be lessened in number until a later period. The owner should himself feed his birds at least once a day, in order that he may see how each one is thriving, and should provide, in his feeding basket, a little chopped meat, or any stimulating morsels of the kind, which he may give to those birds requiring it. Above all things, food should not be permitted to remain upon the ground; nor should receptacles, filled with food, be left continuously before the birds; for in this way they become satiated with one article of diet, and do not run after and relish the food thrown to them at each feeding time. At this middle period, too, there is nothing like coaxing the appetite by varying the meals. If the birds are fed five times daily, we would, if possible, give them five different sorts of food. Whether soft or hard food is given the first thing in the morning or last thing at night matters very little, although there are theories with respect to the advisability of giving a soft food meal at night which have a reasonable basis, but which in practice are not trustworthy. The object of intermediate feeding should be to convert the little chicken into a strong, hardy, growing, voracious bird, which, at the age of three to four months, will eat almost every-

thing that is given to it, and will to a considerable extent take care of itself.

As the chicks grow they will require feeding less constantly ; and, at three months, the cockerels should be separated from the pullets, as they generally prove tigers at feeding time. At this period early morning feeding is very desirable, and if a meal is given at six o'clock, consisting of meal, mixed warm, it will be found to produce admirable results. The dough should be scattered far and wide, and the birds made to run for it. We prefer to see a flock of twenty young birds together, and allowed ample run on dry grass. Clean water or milk, plenty of green food, a dry, clean roost, and four feeds a day up to five or six months, will be ample, and such a programme must ensure success. At ten o'clock they may have a feed of house scraps, if limited in number, otherwise barley, buckwheat, or Indian corn ; again, at three, Spratt's meal may be given plentifully, care being taken to give no more than is readily eaten ; and, lastly, at seven to eight, a good meal of corn, preferably wheat. Fowls such as Bantams, Game, and Hamburgs, which are not reared for size, must be fed in a more exclusive manner ; instead of skim milk, cold spring water should be given. Indian corn and buckwheat should give place entirely to wheat and barley, principally the former. Barley meal and ground oats may both be occasionally used, except for Hamburgs, when the latter should form the staple food. Game fowls require great strength and hardness of flesh ; consequently, fattening foods should give place to flesh-formers as the chicks grow up. The principal flesh-forming or nitrogenous foods, containing the least amount of fat, are beans, peas, wheat, barley, oatmeal, middlings, and oats. Buckwheat and Indian corn, although almost equivalent to some of these in nitrogen, contain considerably more fat and starch. Rice and potatoes contain only about 7 per cent. of nitrogen, hence their comparative worthlessness when used alone. The great bulk of their compo-

sition, excepting the water, is starch, which is simply fat in a stage of formation. Maize and other fat-producing foods are much more valuable for chickens when cooked in skim milk.

As a rule, we do not advise the use of feeders, but for such food as grain and house scraps, chopped liver, and other soft delicacies, a deep stone dish may be used; it should be heavy, steep sided, and one which the birds will not be likely to turn over. A similar dish, of smaller size, will answer very well for water, especially if a galvanised frame be made to cover it, and prevent its being filled with dirt; the cover should be about 4in. above the ridge, and supported by small iron supports, between which the fowls can drink.

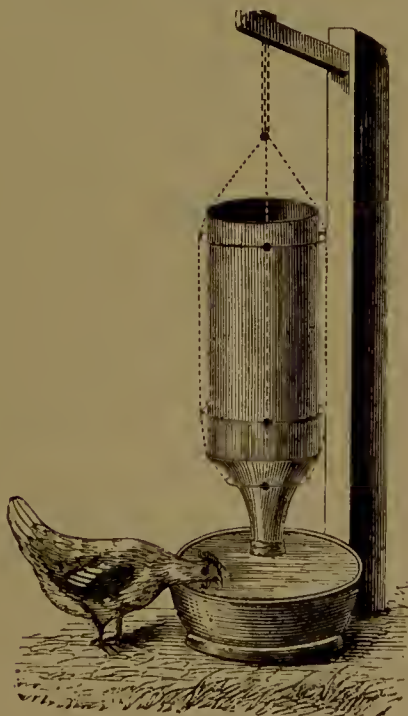


FIG. 11.—Home-made Fountain.

There are, however, many contrivances for supplying water to poultry. Fig. 11 is merely an inverted bottle, which, having previously been filled, supplies the vessel beneath until the

water is all consumed. We first saw this idea adopted in public while acting as judge at the Royal Agricultural Society's Exhibition, in 1885. It is well adapted for show-pens and for crested fowls, as, when the drinking vessel is small, the feathers of the crest do not fall into it.

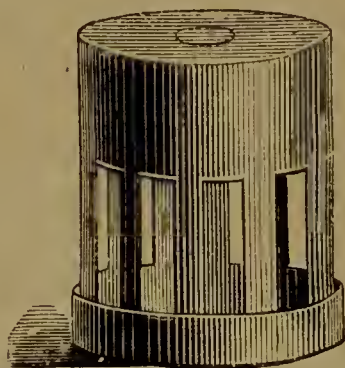


FIG. 12.—Drinking Vessel for Poultry.

Fig. 12 is simple yet ingenious ; the tray at the bottom, resembling an inverted lid, is of metal, sufficiently deep to contain a quantity of water ; the cover, cut to shape in order to keep the birds from getting into the tray, is also of metal.

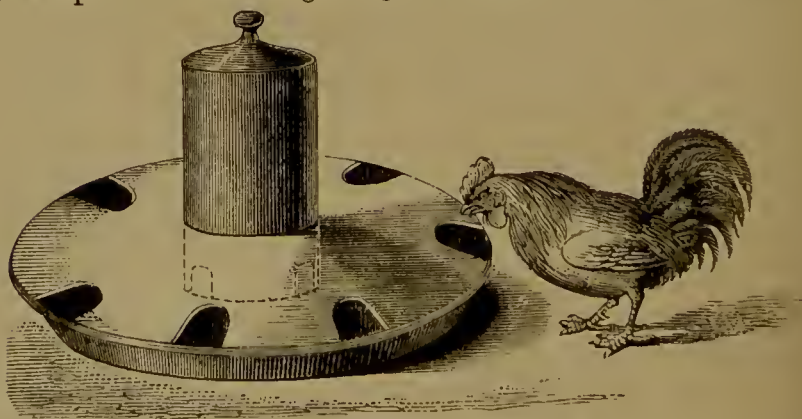


FIG. 13.—New Style of Drinking Fountain.

With a pair of tinman's shears, it can be manufactured out of an old meat tin, or worn-out water can, in a few minutes.

A cleverly made fountain is shown at Fig. 13. This is

constructed of galvanised metal, and, when filled, the tray is supplied with water at will, the fowls being able to drink only from the openings made for the purpose. The tray is

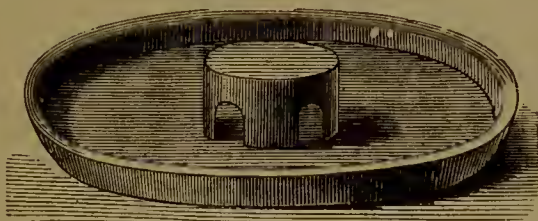


FIG. 14.—Bottom of Fountain.

shown uncovered for cleaning at Fig. 14, and at Fig. 15 are shown the remaining portions—*i.e.* the cover of the drinking tray, and the actual fountain. This fountain was invented by

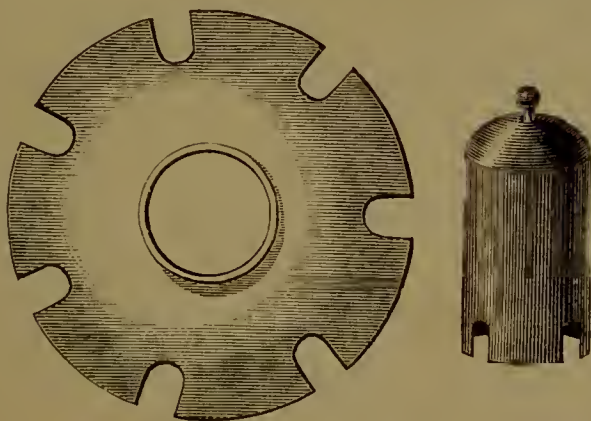


FIG. 15.—Fountain with Cover off.

H. A. Kemp, of Westgate, Huddersfield, and may be had from him, or of J. Jepson, Huddersfield.

Fig. 16 shows a metal fountain made by Westacott, which is convenient and easily cleaned.

Tomlinson's fountain (Fig. 17) is a cheap and useful one. It is strong, easily filled and cleaned, and extremely simple to manage. It is made by H. W. Tomlinson, of Gravelly Hill, Birmingham.

In preparing fowls for exhibition, sheep's pluck, well boiled, and given daily in moderation, together with buckwheat and ground oats as staple foods, and water rendered brackish by a little dilute sulphate of iron, will be found to have the effect

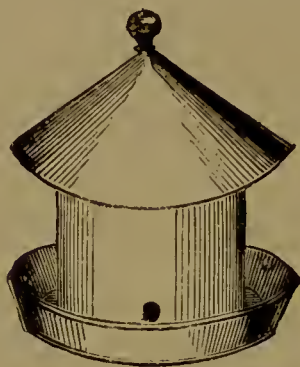


FIG. 16.—Westacott's Fountain.



FIG. 17.—Tomlinson's Fountain.

of brightening the comb and plumage, and making the birds display that *élan* and style which is generally looked for and found in a vigorous cup-winner.

Before concluding these remarks upon rearing, we would impress upon all breeders the necessity of sound feeding of large chickens. They are often neglected at the ugly but critical period of their lives for their smaller and more attractive brethren. Whether they are allowed to roost on a perch or on the ground is a matter for individual consideration, but for large breeds we think the latter is much to be preferred. We have said nothing specially upon patent foods (we do not refer to condiments), but considerable experience with Spratt's enables us to recommend it as being superior to almost any rearing food we have ever tried.



CHAPTER III.

HOUSES AND RUNS.

THE taste, ability, and means of amateurs have so much influence upon their poultry structures, that we shall hardly be blamed if we do not endeavour to meet the desires of all. We have frequently seen houses which were simply expensive complications, apparently devised by an ingenious carpenter to baffle the fowls and disappoint the owners. Others, again, combine elegance, lightness, and strength with general utility. There is a third class of house which, from its simplicity, cheapness, and the ease with which it may be constructed, is patronised by a large number of fanciers, who are either not able to expend a large amount in building, or who are themselves 'handy with the tools.' This class of house is generally a lean-to, and built on the face of a high brick wall having a southern or western aspect. The dimensions, which may be varied to suit different localities, or the number of fowls it is required to accommodate, are as follows:—Height at back, 7ft.; front, 5ft.—allowing a fall of 2ft. to carry off the wet; depth, about 6ft.; length, 10ft. If this is divided off, it will form two houses of 6ft. by 5ft.—sufficient for a cock and five or six hens. Doors, hinged to the centre of the division, one for each compartment, should be made in the front, a little window being cut in the centre of each, and fitted with ordinary galvanised wire; this will relieve the plain appearance, and assist ventilation. The timber may be feather-edged board, lapped throughout, and tarred to within a foot of the ground.

The roof should be felted and tarred, or covered with corrugated iron, which latter is preferable. A perch should run across the house, about $1\frac{1}{2}$ ft. to 2ft. from the wall, and the nest boxes may be placed upon the ground, in a row, next to the wall, or at the side of the house, so that they can be reached from the outside through a small door. If the floor is composed of beaten earth or clay, and a foot of the fine dust-mixture previously advised (p. 115) be laid over this, we think the house will be found to answer every purpose.

With regard to the runs, they may be carried the entire length of the wall, on either side of the house, and should be 16ft. deep at the least—*i.e.* the wire fence should be fixed 10ft. from the doors; and if a division in the run is continued from the house, between the two doors, to the fence, it will be found advantageous if the gates are built on either side in the same way. A gravel path may lead from the gates to the houses, and grass may be carried through the whole length of the run, or share the space with gravel; or, what some amateurs prefer, one-half the run may be regularly dug, enabling the fowls to exercise their scratching powers and to add to their somewhat limited diversions.

When the amateur is able to command an unlimited space for his poultry, it is often useful to have a movable poultry house. Fig. 18 represents a simple yet practical structure of this kind. No. 1 is a side view of the house and run; No. 2 is the front, showing the sliding door and ventilator; No. 3 is the back view; No. 4 is a section across the centre—*a*, the nest box; *b*, the lime box, or bath; *c*, the water trough—an Australian meat tin, cut in half, and fastened to the floor, is recommended; *d* shows the perches. No. 5 shows the ground plan—*a*, nest; *b*, bath; *c*, vessel for water; *e*, a box for corn; *d, d*, perches, which are about 18in. high. This house is, as will be seen, 4ft. long, 3ft. wide, 3ft. high to the eaves, and 1ft. 6in. from eaves to ridge. It is built of rough timber, and the

roof covered with felt, and well tarred. The water tin and corn box are filled night and morning, or at the will of the

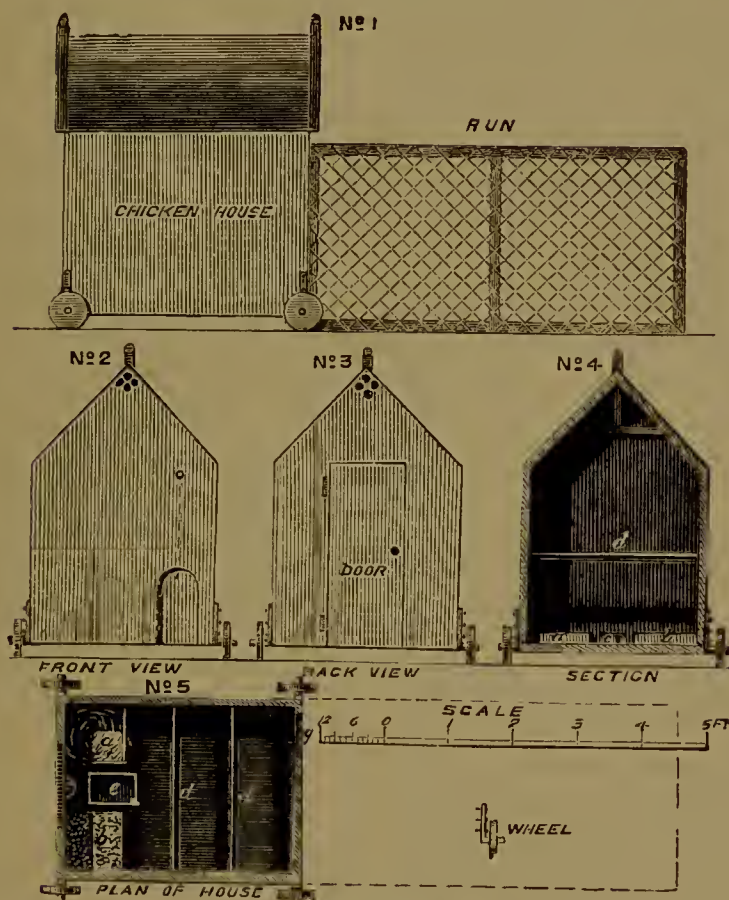


FIG. 18.—Movable Poultry House.

owner. If moved once daily to fresh ground, it will be found that the birds will thrive, and enjoy their travelling caravan.

Fig. 19 represents the ground plan of a single fowl house and run. It is simple, convenient, and easily constructed. The divisions *i* and *j* are built of feather-edged board, felted and tarred, and leaning against the wall; *A*, *A*, *A*, are doors, 18in. wide; *B*, a wire door, to be closed during the day, when the other door should be open; the open run (*p*) may be

gravelled, or, if extended, grass would be more advantageous; E is a dust bath; G, a false shelf, 2ft. wide, and 24in. from

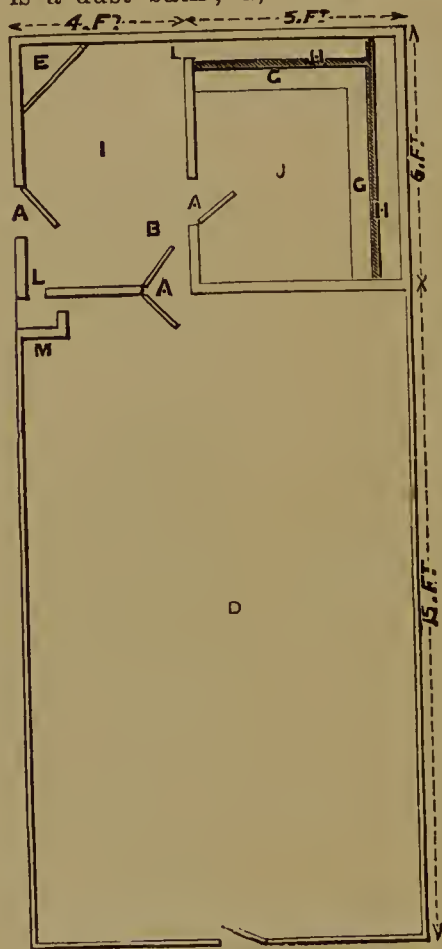


FIG. 19.—Plan of Poultry House and Run.

the floor (this should be regularly scraped, sanded, and dusted with lime, or sprinkled with dilute carbolic acid); H, are perches, made of split pine, 4in. in diameter, the round side being placed uppermost; they should be about 6in. above the shelves. I is the feeding and sitting compartment; J, the roosting and laying house; L, the entrance for the fowls.

Under the shelves, which had better be movable, are the laying-boxes, open at the top and bottom, and halfway down the front; the sketch, Fig. 20, will explain the construction. The handles are to enable the attendant to draw them out when necessary. Each



FIG. 20.—Laying Boxes.

box is 1ft. wide, 1ft. 6in. high, and 1ft. 6in. from front to back. The floor may be made of the following composition—viz. hot lime, smiths' ashes, and sand, beaten flat whilst moist.

The illustration, Fig. 21, represents the Park poultry houses exhibited by Westacott, of Hayward's Heath, at the Bath and West of England Show, at Brighton, in 1885. The

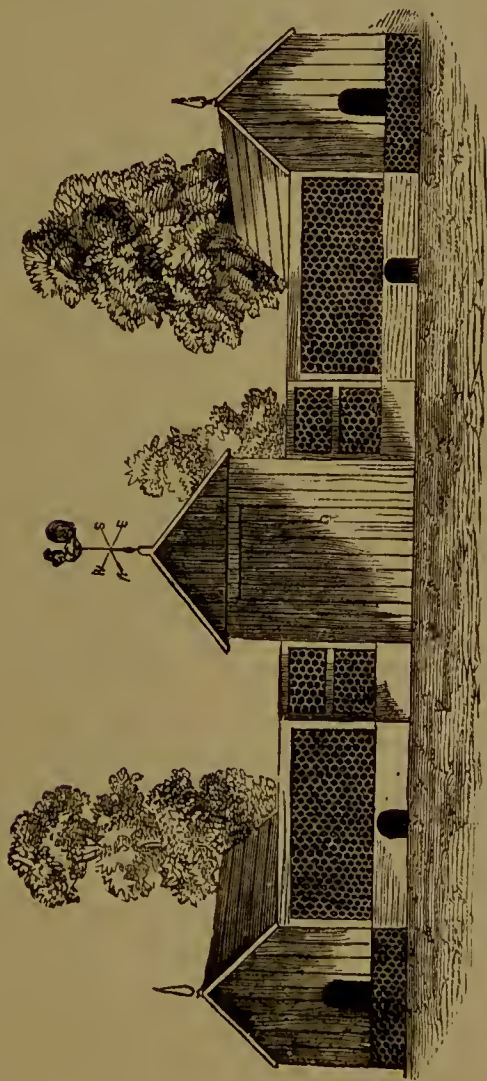


FIG. 21.—Westacott's Park Poultry House.

building in the centre is intended for corn, sitting hens, tools, &c., while the houses at each end, which are 5ft. square by 5ft. high at the eaves, are fitted up for the fowls, with perches, floors, and ladders. Nest-boxes are provided under the

houses, and each house has a covered run, 7ft. wide, attached. A plan of this kind is extremely sensible, convenient, and attractive. Figs. 22 and 23 are small houses, also made by Westacott. These are suitable for a garden, with a run attached, or for moving about the fields, as they are provided with shelter

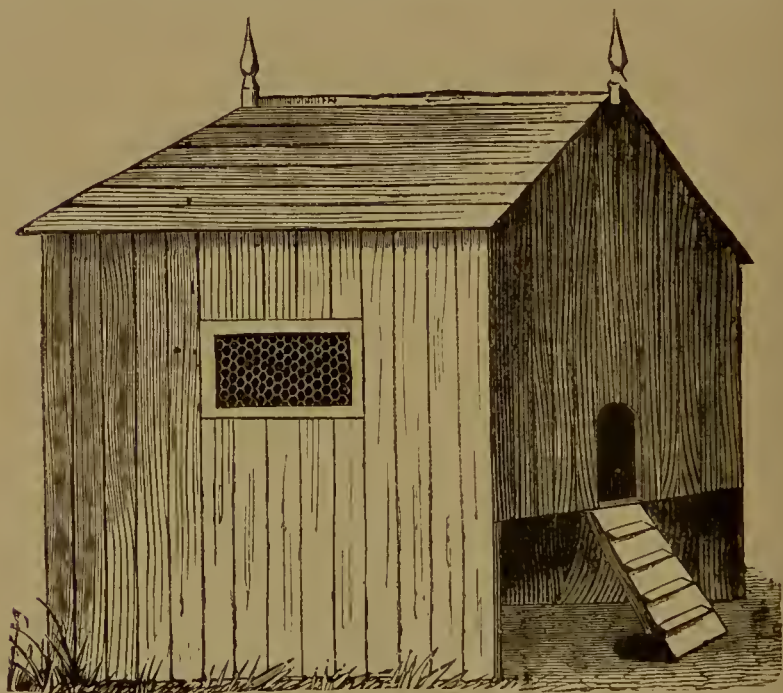


FIG. 22.—Westacott's Poultry House.

for the birds beneath the floors. It is convenient, when houses of this kind are used, to make the nests, perches, and floor-boards movable, that thorough cleansing may be periodically accomplished. The roof should be wet proof, whether built of wood or iron, and the sides wind proof, as nothing is so bad for birds, when roosting, as draught. Ventilation, which is absolutely necessary, is provided by means of a trap door or slide.

Fig. 24 is a small, strongly-made hen-house, in which the joints are firmly covered. The birds enter through a sliding

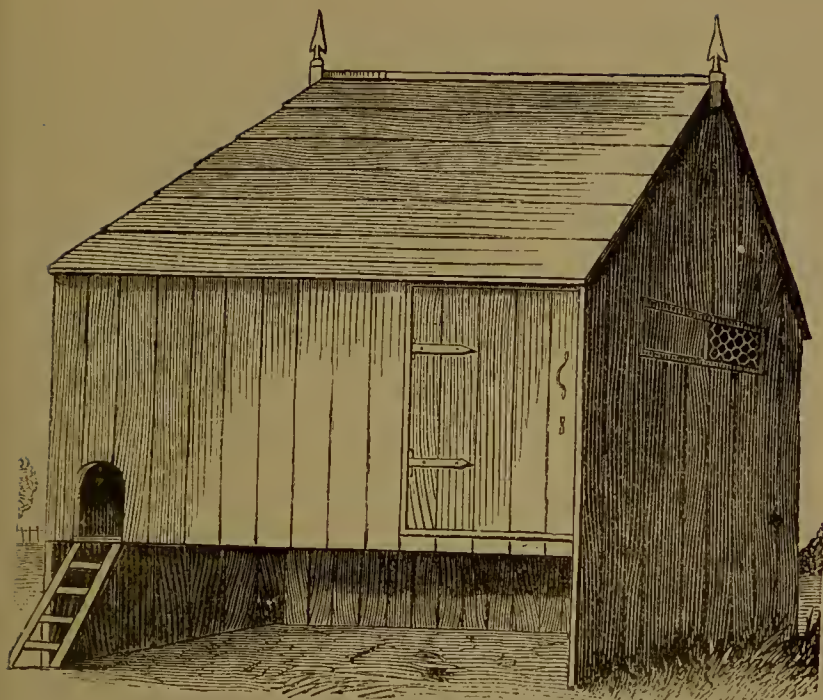


FIG. 23.—Westacott's Poultry House.

door cut in the side, or, by means of a ladder, through the door shown in the illustration. The eggs are obtained without

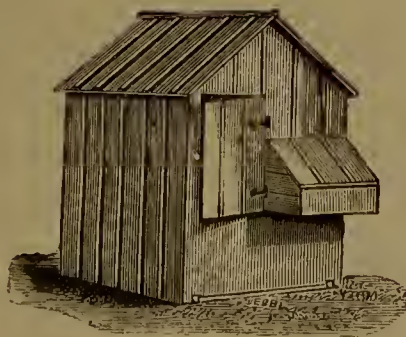


FIG. 24.—The West Surrey Co.'s Poultry House.

entering the house, by lifting the lid of the nest-box shown, which should, preferably, be locked.

Fig. 25 is a style of house which is sometimes adopted in America. It is in some respects useful, but the acute angles cause some inconvenience to the attendant. It is better adapted for heavy than for light fowls, as the perches cannot

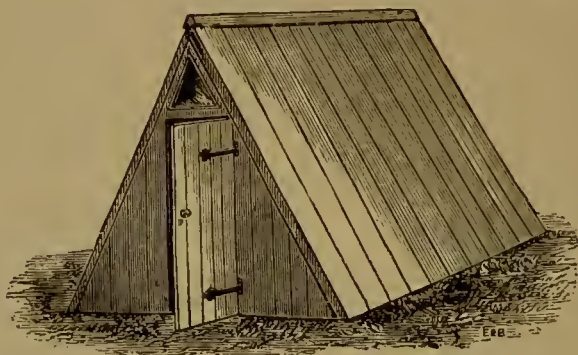


FIG. 25.—The West Surrey Co.'s Triangular House.

be conveniently placed far above the ground. Light enters by the window over the door, and the nest-boxes are preferably placed on each side of the entrance.

For the benefit of those readers who are admirers of the several varieties of the Bantam tribe, we annex the following sketches of Bantam houses, which are from the designs of a

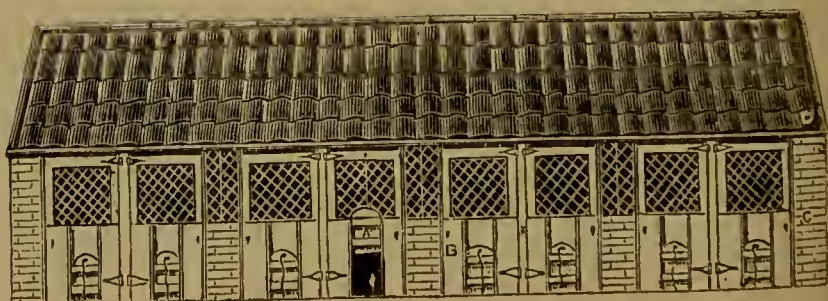


FIG. 26.—Front of Bantam Houses.

well-known successful Bantam fancier. Fig. 26 represents the front—A is a sliding door, to allow the birds a run in the garden for an hour or two in turn every day; B is the front door, the top half being made of galvanised wire netting; c, brickwork,

$4\frac{1}{2}$ in. thick ; D, iron troughing, or corrugated galvanised iron. Fig. 27 shows the back ; at E are the doors for admission into

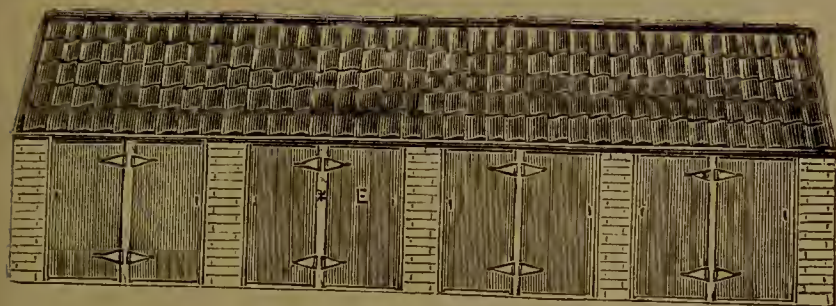


FIG. 27.—Back of Bantam Houses.

the houses to collect eggs, clean, &c. Fig. 28 shows the ground plan. At the spaces, F, openings should be left in the brick-

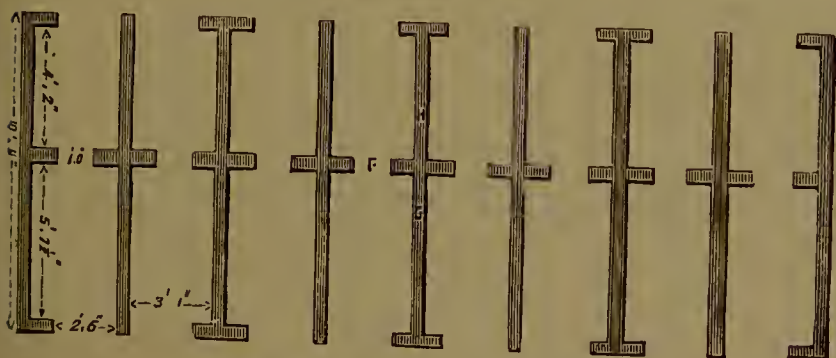


FIG. 28.—Ground Plan of Bantam Houses.

work, 18 in. high, to which are affixed sliding doors, similar to those shown in Fig. 26 ; these are opened and shut by a pulley, or string, carried down the inside of the roof, and through the front wire. When and how these doors should be opened is, of course, subject to the temperature. G, the front part of each partition, is brick to 2 ft. $4\frac{1}{2}$ in. high, the remainder being wire netting. H, the walls of the back compartments, are bricked to the roof, which is covered with tiles. As this inner 'retreat' should be as cool in summer and warm in winter as possible, tiles will be found to answer this double purpose

better than any other material. Fig. 29 shows a skeleton section, from which the dimensions may be easily obtained.

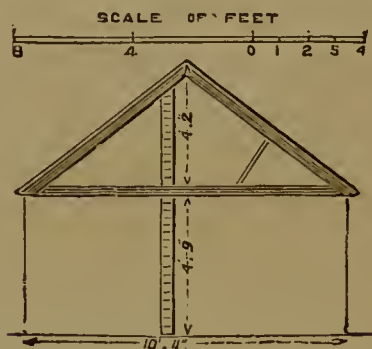


FIG. 29.—Skeleton Section of Bantam House.

Another Bantam house is shown at Fig. 30. This is an admirable plan, and one which we have seen adopted in town yards, for both Bantams and Hamburgs, with advantage. For the latter fowls it is necessary to build it larger. This house, from the design of Westacott, is one which we have for years recommended. It can be made in any size, and the run may be extended at convenience. The birds always have light and air, and can be let out at discretion; but they can always be protected, both by means of the roof of the run and the awning in front, the protecting woodwork reaching 1ft. from the ground. The house is entered at the end, and, being provided with four handles, can be moved at will—a very important point. Spratts make a Bantam house similar to this, but the roof opens from the back, like a lid, and the floor is protected against vermin by fine mesh wire netting.

Fig. 31 is an excellent design for a house for Spanish, which fowls must, to some extent, be kept under artificial conditions if they are to compete with success, the white of the face requiring considerable care. This design was drawn from one in use by a very successful exhibitor and fancier. The doors at A enclose pens in which separate birds are confined. These pens can be kept almost dark when the doors at A and

are entirely closed up, sufficient light to enable the bird to feed being provided by the window at G. If there is no reason

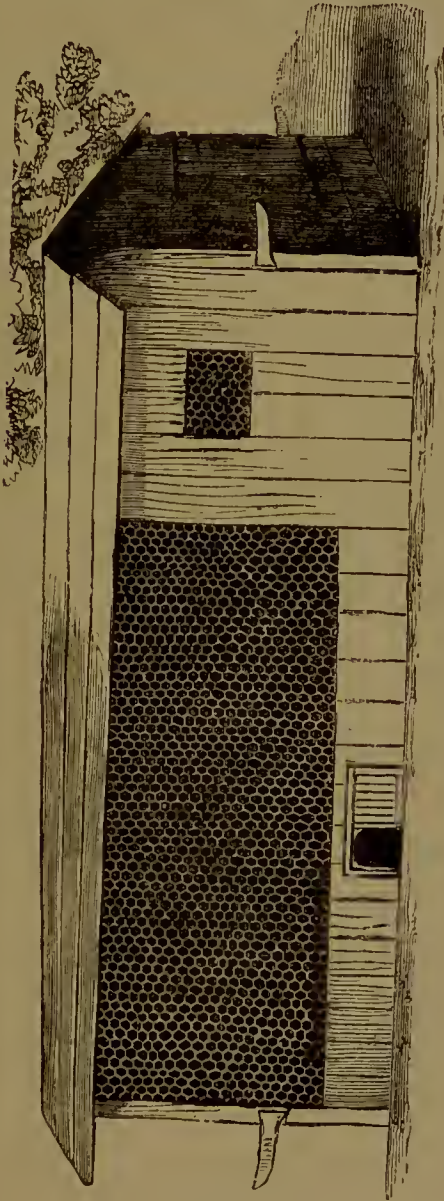


FIG. 30.—Movable Bantam House.

to fear too much light, the wooden doors are entirely opened, the escape of the fowl being prevented by the inner wire door.

E is a trap, which, when opened, as at F, provides air and more light when, in very cold or wet weather, it is inadvisable to



FIG. 31.--House for Spanish Fowls.

open the large door. The floor of the pens we have described acts as the roof of the hen-house below (B). This is provided with windows, to give light when the birds are kept in, in

place of wire, as Spanish require greater warmth than most fowls. c is the inside roost-house, reached by the left-hand door, the run being entered by the door to the right. d is the trap-door for the ingress and egress of the fowls.

Several of the more delicate varieties of fowls suffer materially during the winter from the severity of the frost, not only Bantams, but Spanish, La Flèche, Hamburgs, Polish, Crève-cœurs, and even Game; it is, therefore, often necessary to heat the houses artificially. For this purpose, nothing can be better than a small portable stove, similar to that shown on

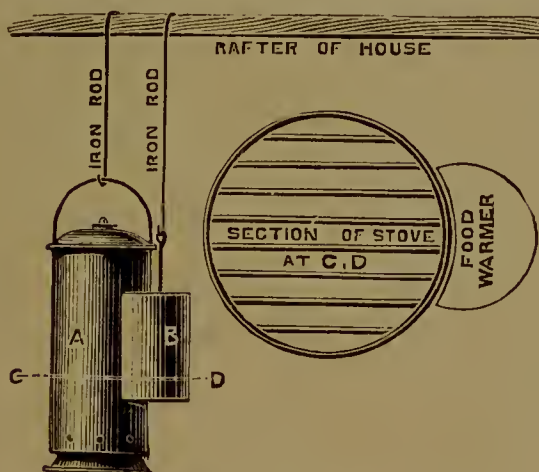


FIG. 32.—Portable Stove.

Fig. 32; it may be hung from a beam or rafter of the house, and within 18in. of the floor. Here it will be perfectly safe, and influence the birds' health in a palpable manner. A is the stove, and B a food warmer, which may be hung on at night, thus providing a hot meal for the birds, which, upon a cold winter's morning, will be both a relish and a stimulant.

In the erection of all houses, great care should be taken to exclude or prevent draught, more especially near the perches. Ventilation is necessary, and conducive to health. Many valuable birds are attacked with roup, which is simply caused by roosting in a draughty house.

It is also advisable to make some provision against thieves. These individuals—so far, at least, as concerns the hen-roost—are now happily diminishing, but it is well to be prepared. To be forewarned is to be forearmed; and, by an ingenious contrivance, which some years ago warned the inventor, a well-known Light Brahma fancier, that unwelcome visitors were paying a moonlight visit to his poultry dominions, the thieves not only left his premises with less ceremony than they entered, but, owing to the report occasioned by their cupidity, they were captured in a neighbour's fowl-house, and conducted to more comfortable, if less desirable, quarters, by the guardians of the peace. The warning is conveyed by means of a detonating ball. Inside the house, and running down by the side of the door jamb, is a long barrel, or funnel, at the top of which is suspended a heavy clock weight; this is attached by a string to the door, in such a manner that, when the latter is opened, the weight becomes disengaged, falls down the barrel, on to the detonating ball, which is placed on a stone at the bottom, and a loud report follows; this scares the thief, and alarms the inmates of the house. The string is set from the outside of the house, and, to prevent exposure, the door is made with the battens outside, the string or connection with the weight being concealed under one of these.

At the Danish Exhibition, in Jutland, a few years ago, we saw an apparatus, exhibited by Selmer, of Aarhus, which was intended to regulate the feeding of poultry at specified times, without the necessity of an attendant being present. It was explained, that a person keeping poultry, and not being able to attend to them—whether from absence or a business engagement—could still feed them properly, without adopting the objectionable plan of keeping food always before them. The method adopted was extremely simple. At the bottom of a hopper, filled with food, was a small trap-door, fitted with a latch. Close at hand was an ordinary clock, with heavy

weights attached. It was so arranged that, when the weights reached the latch of the door, they opened it, and the food for each meal fell upon the ground. It could be so regulated, that the food could be given to the birds at any specified time, and in two feeds, without the necessity of the feeder's presence.

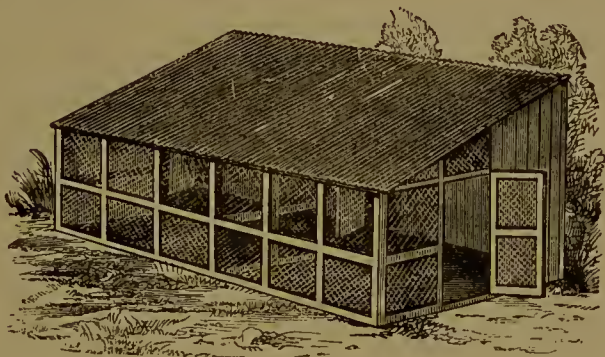


FIG. 33.—Christy's Poultry House.

The house shown at Fig. 33 is an extremely useful one, and suitable for suburban gardens, where the birds cannot be

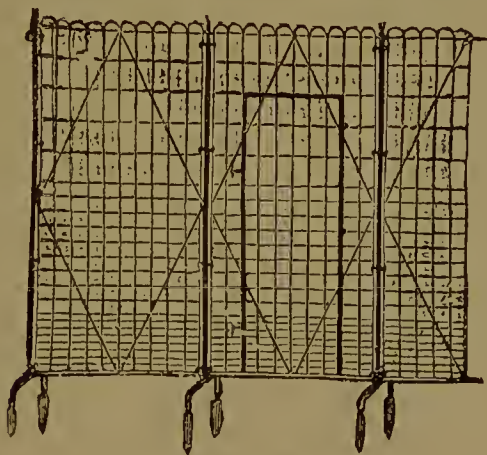


FIG. 34.—Poultry Fencing with door.

allowed to run free. The roosting apartment is warm and dry, and built in one corner, allowing a large space for a run.

It can be divided if necessary, or extended. We have repeatedly recommended this class of poultry house.

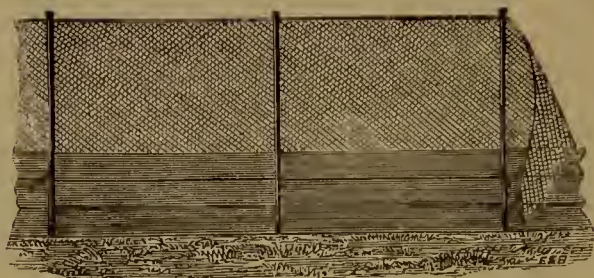


FIG. 35.—Wire Fencing boarded at the bottom.

Fig. 34 shows the kind of iron fencing commonly used for poultry runs. This is more useful for the fronts of runs rather than for dividing them, as the birds invariably fight through it. For divisions it is preferable to board up at least two feet, as shown at Fig. 35, and finish with wire above.

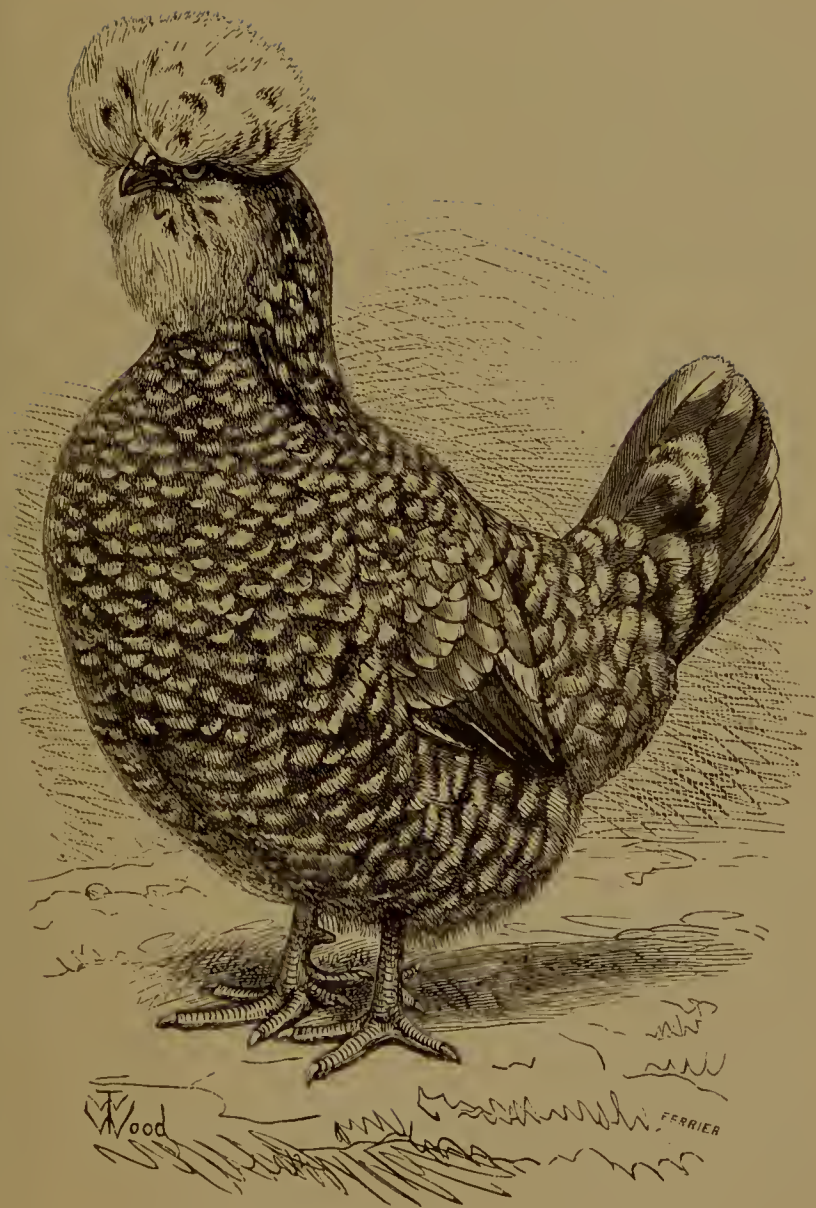
CHAPTER IV.

GENERAL MANAGEMENT.

It may be truly said that, without good management, good birds and the best of food are entirely thrown away. In a yard of exhibition poultry, so many troubles crop up, and so much labour has to be continually performed, that, although the eye of the professed poultry man, or the accomplished fancier, will instantly detect each grievance, and provide for its removal, it will not be superfluous to make a few remarks, for the benefit of others, upon various matters necessary to secure success in the exhibition pen. To commence with the laying hen. It will occasionally be found that one or more matrons are fond of a dainty meal, and eat their eggs. Many plans have been suggested to check this propensity, but, as the result of varied experience and much inquiry, we can only safely recommend one. Eggs blown, and filled with nasty concoctions, no doubt occasionally act as checks to the bird, but they will certainly not prevent a recurrence to the practice on the first opportunity, for the taste she has acquired will brave all 'bitterness,' and scorn the action of cayenne. It will be found far the most profitable and least troublesome course to provide a nest with a false bottom. It should be made with a hole in the middle large enough for the eggs to fall through, the false bottom sloping all round to the hole, similar to the old-fashioned 'wells' which are usually placed under a bottle-jack. Instead of using hay or straw, it will be found advisable to pad the false bottom, when the egg will roll

softly through the hole on to the hay placed beneath. Sometimes a small shelf is made in the centre of this well-like nest, and upon it an imitation egg is securely fixed. When the hen lays, her egg rolls, not through a hole in the centre, but through the space around the side of, and beneath, the shelf.

It sometimes happens that the eggs under a sitting hen are carried off by rats. There are many elaborate mechanical contrivances for the reception and safe detention of these ugly gentlemen, but we pin little faith to anything but a rat-catcher or poison. If, therefore, a piece of wood is rubbed with oil of valerian, and a small piece of meat, well-dressed with a good vermin-killer, is fastened to it with a nail, and placed in a rat run where the hens cannot get at it, it will invariably be found to answer every expectation. Young rats may frequently be taken in a plain wire cage, or in a 'Corsincon' trap, which is a trap within a trap, a captured rat being secured in the centre, and fed there as a decoy. An expert man will catch young rats, and at times a few old ones, with a steel trap; but plenty of perseverance and cunning is necessary to success. Ferreting periodically is one of the best plans to follow, for by these means lots of young rats are destroyed in their nests. Poisoned meal will be found successful if the rats are treated to the genuine article for a few nights until they are deprived of suspicion. The subject of rats naturally leads to that of cats. We do not look upon these members of the feline race as absolute vermin, but as domestic thieves full of wary cunning, and seldom to be trusted. A cat is a far greater nuisance than a dog, and we commend the endeavours of those who keep down, as far as possible, the superabundant kittens and prowling toms. Cats are extremely cautious, and traps to catch them are seldom successful. We had a friend who grew almost grey under their terrible influence, for they took numbers of well-grown Brahma chicks from under his very eyes. At last he determined upon revenge, and, by the aid of an air-



HOUDAN HEN.

gun, he exterminated them, no doubt much to the chagrin of his neighbours. We have, during many seasons, been terribly tried by cats. To get rid of these, the oil of valerian and poisoned meat, prepared as for the rats, may be safely recommended; deposit the poison in little slits cut in the side of the meat, and be careful to fasten the wood firmly to the ground, so that, in tearing the meat off, the poison is sure to be taken. The wood, and any remaining meat, should, of course, be removed before the birds are set at liberty the next morning, if it should have been placed within their haunts. Cats are such a nuisance to the poultry-breeder, that where they abound he cannot possibly succeed. He should, if in the country, where he can at least claim immunity, warn those of his neighbours who keep them, that he will claim damages for every chicken their cats take, and he should from the first rigorously adopt this course. It is easy to get rid of them in other ways; but although this is commonly done, the proper course is that just indicated. A fancier's cat, trained among chickens, is a valuable animal; and as it is quite easy to train kittens to feed side by side with a brood of chickens, we would advise every breeder who is troubled with vermin to obtain some; no traps or poison can so completely keep down rats and mice.

It is a good plan to plant shrubs in the runs; they are very acceptable to the birds, as shades from both sun and rain, and, moreover, add greatly to the appearance. Some fanciers, with limited space, about April set apart a portion of the run, and plant it with a large variety of cabbage. When the chicks are from three to five months old, they may be let into the 'cabbage garden' in turn, with great advantage. A run may also be partially planted with prickly comfrey with equal benefit. This will provide food for stock of any kind, and also shelter the birds during the great heat of the summer, and at a time when they will not do it any harm.

Before making up the breeding-pens, it is advisable to have a general cleaning, when the insides of the houses should be whitewashed with a good mixture, such as that prepared by bricklayers, and termed in some localities 'bricklayers' putty.' It is a mixture of lime and size, and dries very white, destroys all insects, and does not rub off. The nest-boxes, roosts, coops, and pens may be freely cleansed with this composition, when their nice appearance and healthy tone will well repay the fancier for his trouble. It is also wise to pave the floors of the houses and most frequented runs to a sufficient depth; after sprinkling the substratum with lime, cover it again with the material which may be decided upon, whether sand, dry earth, or a mixture.

Where a shed or outbuilding is at hand, it will be advisable for a fancier who determines to exhibit, to erect a few pens, for the purpose of testing the merits, and curbing the wildness, of birds. They are best arranged about 3ft. to 4ft. from the ground, and may vary in size according to the variety kept. A wire front is, of course, desirable. These pens are supplied by Spratts, Billett, and other makers, in any size, at moderate prices, the divisions between each pen being made of sheet-iron, galvanised. Drinking-tins may be hung on the outside, or a Polish fountain placed inside; or, what is still cheaper, an inverted wine-bottle may be suspended over a small metal trough. The tops of the pens should be, preferably, of wood, as wire offers a temptation to the birds to attempt to escape, which often results in serious damage to their combs. With soft food, grass, small gravel or sand, and water, the birds may be kept in these pens in a healthy condition for weeks. If a large stock is kept, and the necessary space is available, it will be well to isolate a portion of the building as a hospital. Disease is introduced into the healthiest yards from many causes, and isolation can alone prevent its spread. Therefore, as it is well, where a valuable

flock of birds is at stake, to be prepared for any emergency, we recommend, for the purpose of isolation, the iron show-cage, than which there is nothing better.

When the amateur determines to exhibit, he should send to some of the secretaries of poultry shows for their schedules of prizes, and, after a careful perusal, select the exhibition which offers him the surest advantage. If he can make up one good pen—a cockerel and a pullet—it will be safer policy than to enter two moderate ones. Too much should not be expected at first. But, unless birds are sufficiently good to warrant their being placed ‘high up,’ they had better stay at home. Many an amateur has been wrecked upon the rock of hope, and been utterly lost to the fancy from early disappointment.

At some shows it is customary to offer prizes for single birds, and the young amateur can often muster one good specimen with which to make a venture. It is, however, always better to send two, or even three, single birds, if they are good, as this will give more strings to the bow, and the expense of conveyance is seldom greater. The most suitable show for the amateur would be sufficiently near for him to visit, and study, the class he admires, which is not too highly favoured by the professional element, whom he can scarcely hope to beat at first, and which is judged by a man of reputation. Perhaps this latter remark needs qualification, as there are judges who have plenty of reputation, but who are, nevertheless, responsible for much of the trimming which has been fashionable for some years past.

The entry form filled up and despatched, nothing remains but to let the birds alone—unless they require washing, as *old* white birds usually do—until two days before the show, when the legs may be cleaned with a brush, and soap and water, and the comb, wattles, and face washed. When clean, and ready for despatch, they should be turned into a covered apartment,

strewn with clean straw, and left until they are transferred to the hamper in which they are to be conveyed to the show. This should be a strong, round one, with a lid halfway across the top. Cover the bottom with clean straw, and tie a small cabbage and a piece of bread high up in the inside, for the birds to peck at on the way. In winter, the hamper should be lined with thick canvas; and for small breeds—such as Hamburgs and Bantams—or single birds, it should be long, rounded at the ends, and divided in the middle, that two pens may be carried. For the large breeds, it should be 3ft. high; for Hamburgs, a little lower. For Bantams, we prefer a good Brahma hamper in miniature, lined inside, and covered with canvas at the top, that the sickle feathers may not be injured. When several pens of Bantams are exhibited, more especially when the pullets and hens are not shown with the cocks, and provided the owner accompanies his specimens, or can depend on their receiving careful attention from the show authorities (and some secretaries are very good in this respect), he may put all his pullets together in one hamper, and the cocks in two or three separate compartments of another, thus saving considerably in carriage. A hamper may well be made to hold four single Bantam cocks, or two cocks and two pairs of hens. There is so much finesse in exhibiting, that intelligent fanciers necessarily think for themselves, and discover innumerable little ‘wrinkles’ whereby their stock may be improved and expenses lessened. Birds are usually forwarded ‘without delay’ by the railways, and in most cases they may be left on their runs until within an hour, or less, of their departure by a train which may be depended upon as certain to convey them in time for the show. At some shows, the rules are so stringent that, five minutes after the stated time, a pen would be disqualified, an entry refused or forfeited, or a slight clerical error admitted as an objection to a prize-winner. For example, we know of one case in which a cup

for Brahmas was withheld on account of the birds being accidentally described in the catalogue as Bantams ; and in another case, entries were refused the day after 'closing,' although four times the proper fee was offered for each entry. At many properly organised poultry shows, however, a fair margin is allowed, and an omission in description, age, &c., does not disqualify. It is important to be particular when an entry is made in a 'variety' class. If the exhibitor keeps two or more varieties competent to compete, he is bound, if he gives the exact description, to send the variety entered ; whereas, it will be noticed that the leading exhibitors, in such cases, give neither the name of the variety nor the age. When all is ready, the hamper (to which the printed label received from the secretary must be tied) may be despatched, carriage having been prepaid ; and, perhaps, on a catalogue being sent for, patience may be found to have received its reward.

When young cockerels are returned from a show, they should be divided, as they usually fight. White birds may be well washed in a large pan of hot soapsuds. The bird should be thoroughly immersed, well lathered with yellow soap, rinsed in cold water (tepid in winter), and placed in a basket of clean straw, before a good fire. When we say 'well washed' we mean it ; some persons have an idea that it is only necessary to scrub the bird's leg feathers, and sponge down his hackle, saddle, wings, &c., with a sponge or flannel which has been well soaped ; this is a mistake, as, after such treatment, the bird usually looks worse. The bath should be made to the consistency of a washerwoman's 'suds ;' let the bird stand in this during the operation, with his legs tied, if necessary. When he is well lathered with the soap, the hand may be well rubbed into the 'fluff,' passed amongst the feathers of the cushion (if a hen), and well worked over the breast, hocks, &c. Some fanciers use a small, moderately hard brush, for the hackle, soaping it well, and brushing downwards over the

feather. In drying, it is well to place the hamper before the fire, a foot above the ground, that the heat may get under the bird. Even when thoroughly clean, the wet feathers look dirty, and only display their whiteness when, yielding to the gentle heat, they open out into their normal form. Although it is seldom necessary to wash other than *white* birds, there are occasions on which Dark Brahmas, and even Buff Cochins, require a bath; the delicate ground colour in the former, and the richness of the latter, are often marred by dirt, and an improvement is made by a judicious washing. Some persons are most successful with a sponge, but practice only will enable the fancier to turn out a washed bird well. In drying, if the bird is not well rinsed, the washed-out dirt will remain at the ends of the feathers. It is well to dry the feathers as much as possible with a clean cloth before placing the bird in front of the fire.

The establishment of the Royal Poultry Show reminds us of the probability that, before this work again requires revision, the system of exhibiting will be largely changed. Agricultural Societies especially will be induced to require three hens and a cock to each entry, as of old—and this is surely the best test of the value of a yard. This plan has had much to do with the success of French farm poultry, but it necessitates longer show-pens than have hitherto been used. There is no doubt, in our opinion, that, in the future, Spratts, or some other firm, will find it necessary to furnish such pens, and exhibitors will be required to fall in with the idea to a large extent. Bearing this in mind, breeders of poultry for exhibition must remember to produce accordingly; and, what is more, they must take care to reserve birds for such meetings as the Royal, which are held at unusual periods.

It sometimes happens that birds with single combs, such as Spanish, Minorcas and Leghorns, suffer from the falling over of the comb, which often occasions a sore, and is at all

times unsightly. To prevent this, and also to maintain the comb in its erect position, a wire 'cradle' is used (Fig. 36).

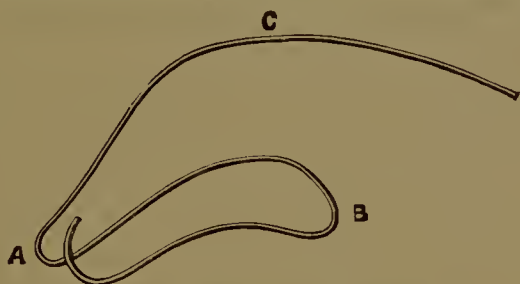


FIG. 36.—Cradle for Single Combs.

The portion B is placed on the head, beneath the back of the comb, and the two bends at A are pulled tightly to the front portion—that immediately over the nostril—and then tied on the angle formed by these two points. The bottom portion of the cradle thus forms a firm foundation. The portion shown

at C is then bent round

the upper portion of the

comb, brought round to

the end of the wire,

near A, and united. In

this way the tall comb

is prevented from fall-

ing over. If necessary,

the wire at the top can

be tied across the ridge

of the comb, to keep it

more compact. This

'trick'—perfectly legi-

timate from the point

of view mentioned above

—has often been used

by unscrupulous persons

to prop up the lop comb of an otherwise good bird for a few

hours—long enough, in fact, to obtain a prize.



FIG. 37.—Cap and Wire for Comb.

Fig. 37 shows the comb of a fowl enveloped in a cap. This is often necessary on account of disease, or in order to protect a comb from the attacks of hens, which sometimes take a fancy to pecking it. The cap is made (calico or flannel will do very well) with a hem round the opening, in which a piece of wire, with an eye at each end, is run. The cap is so placed on the head of the fowl, that the openings for the eyes are brought to the front, over the beak, and it is there tightly tied, when it will be impossible for the bird to remove it.

At Fig. 38 is shown the foot of a fowl upon which a ring is fixed, with a figure denoting the particular breed of the

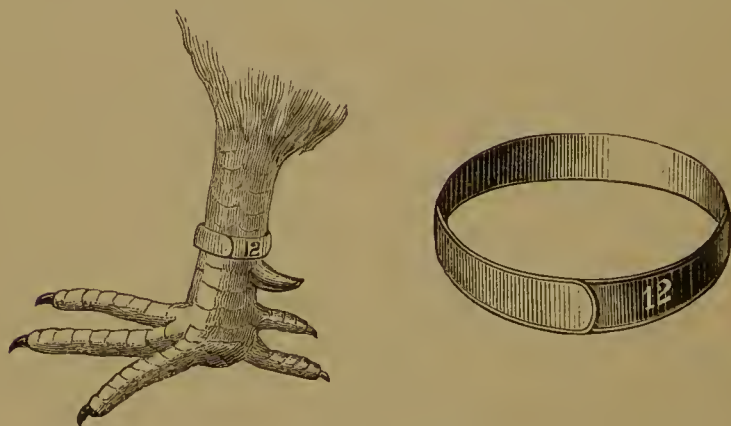


FIG. 38.—Ring for Marking Fowls.

specimen. There are many ways of marking a bird, but this is the best we know of, for marking upon the fowl itself is most unsatisfactory. Metal rings can be purchased for the purpose; in some cases the number is marked on the ring, in others it is printed upon it by an instrument made for the purpose. Indiarubber rings are also used with advantage.

CHAPTER V.

ARTIFICIAL INCUBATION.

SINCE the first appearance of this work, more than a dozen years ago, very great advances have been made in the improvement of incubating machines ; and although we do not believe that country people, who rear the bulk of the poultry in England, will ever abandon the sitting hen for the incubator, yet there is no doubt that, by degrees, amateurs will accept and use them. The reasons for this belief are twofold. An incubator can be manipulated in the house, avoiding the necessity, often very disagreeable, of going out of doors in all weathers to attend to the sitting hens ; and a much larger number of eggs can be set at one time, with a minimum amount of trouble. To extenuate the failings of the system of our forefathers, while the incubator was yet imperfect, would have been obviously improper ; but now that there is no longer any doubt about the success of artificial incubation, and it is shown to be so certain and simple, we cannot forbear to notice the immense advantages it displays from the point of view of the amateur breeder. Search for sitting hens, often conducted for miles round the country, is no longer necessary. There need be no more fear of hens forsaking their eggs, of the destruction of eggs by rats, or of the dissemination of insect life. The hatching-house, and its disagreeable concomitants, filth and broken eggs, may become a thing of the past. All this is due to the discovery of an infallible regulator.

which controls the temperature of the machine, and enables it to hatch with as much certainty as the hen.

It is not necessary, in a practical work of this kind, to deal with the history of artificial incubation. In the first edition, we referred to the English machines of Graves and Boyle, and also to the American incubator of Halsted, all of which were self-regulating, but not equal to modern inventions, their regulation being less perfect.

In Graves' machine the eggs were placed in a tray between two tanks of water, that in the bottom one being cold, and that in the other hot; above this was an air chamber, and at the top was the drying nursery for the chicks when hatched. At one end of the incubator was an oil reservoir, above which was the lamp; suspended over this was a boiler, which communicated by tubes with the hot tank. Beneath this tank ran a couple of glass tubes, containing alcohol, and communicating on the outside with a cylinder. This cylinder, containing mercury, was furnished with a piston, and thus, the valve being adjusted to a certain temperature, when the tank rose a degree too high the alcohol expanded, and acted upon the mercury, which forced up the piston-rod. The rod, acting upon a lever and a spring, by a most ingenious contrivance, lowered the flame of the lamp, and at the same time opened a valve on the top of the machine, which allowed the warm air to escape. It should be mentioned, that the machinery was in duplicate, and placed at each end of the incubator.

Boyle's incubator is certainly a most elaborate and ingenious piece of workmanship. The principle of the regulator is as follows. Water, placed in a boiler, by the force of expansion is capable of lifting a certain quantity of mercury; the boiler is therefore connected, by its only outlet, with a glass tube, at the end of which is a bowl. This tube is placed in a horizontal position, and is connected with the boiler by a flexible hinge. Exactly above this glass tube is the gas-pipe,

in the centre of which is a tap. Here lies the important point. This tap acts as the pivot in the centre of a lever, one end of which is weighted with a small weight, the other being connected, by a thread, with the bowl of the glass tube, so that any weight in the bowl at once acts upon the lever, and, consequently, turns off the gas. In the bowl, therefore, a certain quantity of quicksilver is placed—just sufficient to balance the lever when the water in the boiler stands at 106° . Should it, however, from any cause, become liable to higher or lower heat, such variation is immediately checked by the extra pressure upon the quicksilver caused by the expansion of the water, thus forcing it into the bowl, and acting upon the tap; or, on the other hand, lower temperature causes the water to contract, the quicksilver is drawn to the other end of the tube, and the bowl rises upwards, when the tap is gradually turned on.

Then came the machine of Penman, in which the eggs were heated from top contact with indiarubber over which hot water flowed. The regulating power, however, was not satisfactory; indeed, this machine was not equal to the mercurial regulator of Boyle, and although it took the prize at the London Dairy Show, in 1877, it failed altogether at the Hemel Hempstead Tournament in the following year.

Next came Christy's Hydro-Incubator, which was, practically, without any system of regulation of temperature, but which seems to have done, in some hands, a great deal of work. In this machine, the eggs were placed in a drawer beneath a hot-water-tank, the water in which was heated by circulating through a small boiler outside, and placed over a lamp. This machine is now superseded by the same maker's Thermostatic Incubator (Fig. 39), which is a great improvement as to form, and is fitted with a metal band for regulation of the temperature. The incubator resembles a square wooden case upon four legs. In the upper portion is an iron water-tank (U U), which is connected, by means of two copper pipes (R R),

with a small circulating boiler (H) fitted outside. The water passes, by the lower pipe, into the boiler, where it is heated,

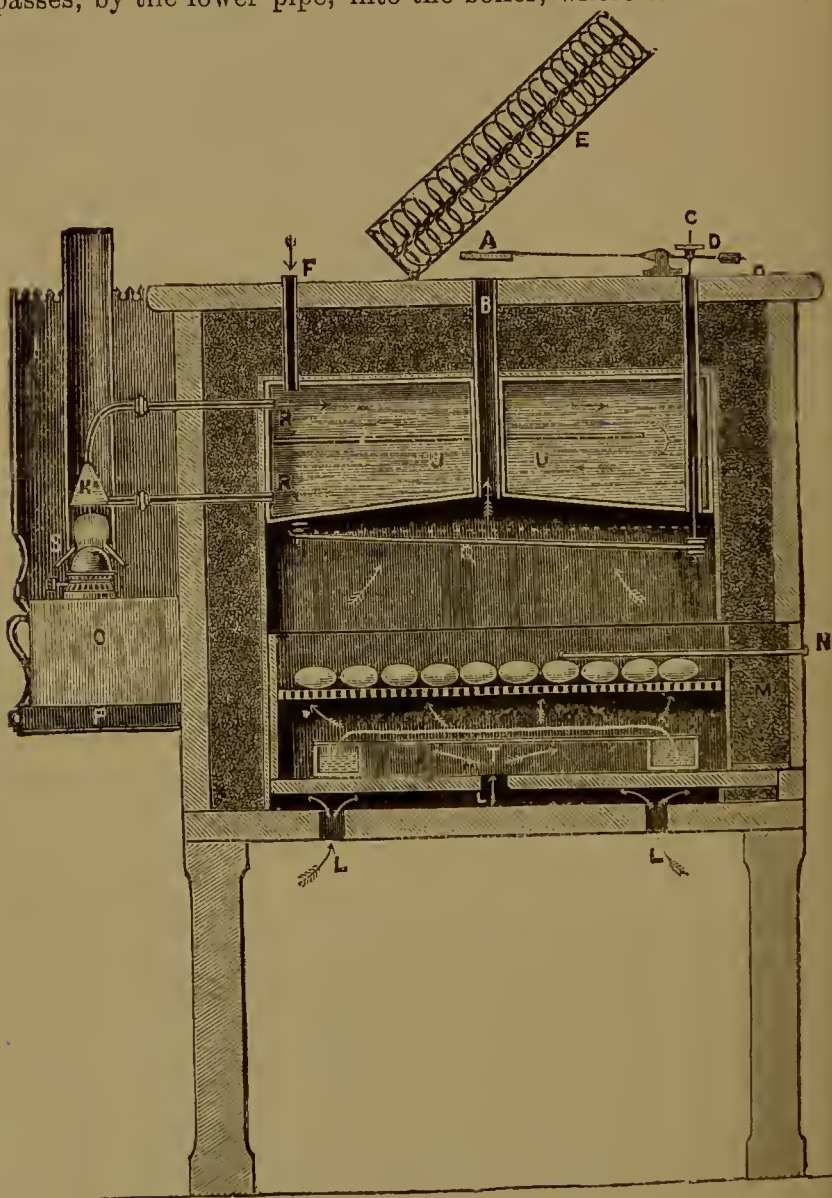


FIG. 39.—Christy's Thermostatic Incubator.

and returns to the tank through the upper pipe, as seen in the engraving. This water is heated by a lamp (O), which is fitted

with a metal chimney, in which the boiler is fixed. A broad convex collar is shown at the bottom of this chimney, at s, which is made so as to admit as little air as possible. This lamp is claimed by Mr. Christy to burn perfectly steady, and without smell. The lamp is fixed by a metal screen (r), and is provided with a wooden slide (p), which enables the lamp to be pushed close into the chimney. Between the tank and the eggs is an air chamber, in which the thermostatic band (q) is fixed. This band is composed of two pieces of metal, the top one being of zinc, and the bottom one of tinned iron. These are fixed together, and therefore the zinc, which has the larger power of expansion, is unable to expand under the influence of heat, as it would do under other conditions. The band is, therefore, bent at the left-hand angle, where the expansive action of the zinc is directed into straightening itself. As, however, one end is a fixture upon a piece of non-conducting material, the only possible action is at the opposite end; and when subjected to a certain temperature—that of about 104° —it deflects downwards by the force of its own expansion, this action being caused by a rise of as little as 2° . The perpendicular rod (c), connected with it is then drawn down, and the valve (A) is at once opened, ventilating and lowering the temperature of the air-chamber by means of the air shaft (B). The regulating band is seen at Q, and may be seen in action when the temperature necessitates the opening of the valve. The dotted line above the band shows where it rests when the machine is cold. D is a screw which enables the operator to regulate the action of the band still more closely. The ventilation of the incubator is arranged so that a current can be continually distributed through the egg-drawer. Air enters at the aperture L, and, when it becomes too heated, passes up the shaft (B), as explained above. A thermometer is fixed at N, showing the temperature outside the machine without the necessity of opening the drawer.

There is also a thermometer, fixed in the top of the machine, which shows the heat of the water at the bottom of the tank. The eggs are moistened by a vessel (T), which fits round and beneath the egg-drawer. A piece of coarse canvas covers the space at the sides of this vessel, and it dips into the water all round, so that, as the canvas is always wet, the air passing through absorbs the requisite quantity of moisture. The valve at the top of the machine is covered with a metal screen (E).

Next came the incubator invented and exhibited by Cashmore, which won second prize at the Hemel Hempstead Tournament, the temperature of the egg-drawer during the twenty-one days' trial varying between 96° and 104° , fifty-seven per cent. of the eggs being hatched. The heat was maintained by a benzoline lamp, or by gas, acting upon a water-tank, and the regulating power was based upon the expansion and contraction of water, which, upon expansion, acted, by means of a rod, upon the flame of the lamp.

We well remember the simple incubator of James Watson, having awarded a prize to his collection at Dublin. The 'Scotia' machine is a very cheap and simple one, but, as it has no regulator, demands much greater attention at the hands of the operator. The water is heated by means of paraffin lamps, and the egg-drawer, which is placed between them, is provided with earth, kept moist, and straw only.

Next comes the machine of Voitellier (Fig. 40), one of the best we have seen upon the Continent, which is also a hydro-incubator of the Christy type. The eggs, however, lie in a nest in the centre of the machine, and are protected from the outside temperature by a pair of glass lids, or windows, through which they and the thermometer can be seen. The hot water is contained in a circular tank, but neither regulation nor ventilation are all that could be desired. M. Voitellier, who disbelieves in top heat, claims that a round nest is superior to a square drawer, as, in the latter, the eggs lying in the angles

do not receive their due proportion of heat ; he also contends that they are dried too much when subject to top heat from a metal tank ; and that drawers are objectionable, inasmuch as they require greater space, are liable to more accidents, and

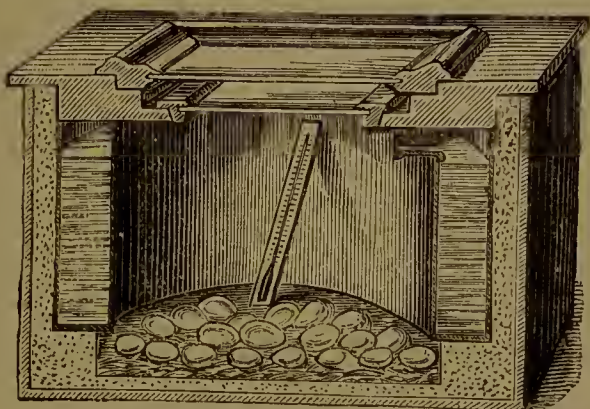


FIG. 40.—Voittelier's Incubator.

mislead the operator, who, when opening them, to see the thermometer, immediately admits cold air. Drawers also necessitate the thermometer lying in a horizontal position, which, M. Voittelier believes, militates against it giving exact indications. For the purpose of turning the eggs, M. Voittelier provides two systems. In one system are six tray-like sections of a circle, which together fit the 'nest' of the incubator. One of these trays, when filled with eggs, may be covered with another, empty one, to which the eggs may be transferred by simply turning the two in the hands. In the other system, the eggs lay upon a series of bars, covered with a length of cloth, the end of which is attached to a screw. This can be turned from the outside of the machine, thus moving every egg.

Fig. 41 shows M. Voittelier's incubator-room at Mantes ; this is not the only one of the kind, for at Cham, near Zug, in Switzerland, Mr. Page, the owner of an extensive poultry farm, has a battery of machines of considerable merit, which

have hatched as many as 15,000 chickens in a season. These incubators were made to the design of Mr. William Page, who, failing with every special machine he tried, became

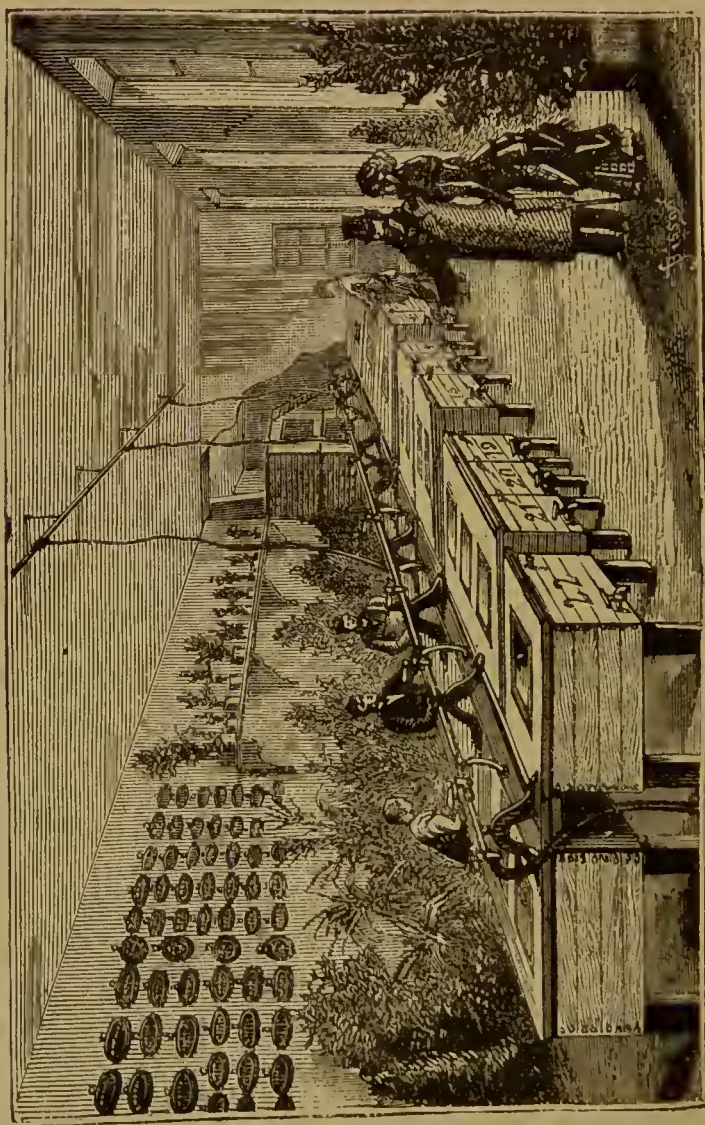


FIG. 41.—Voteller's Incubator-Room, at Mantos, with Incubators shown at work.

quite expert, and constructed one for himself, which answered very well. The whole of his machines are heated by a large boiler, with which they are connected by hot-water pipes.

The hot-water system is carried to the little runs in a glass-roofed house which serves instead of an artificial mother. We have visited this farm upon three occasions, and have found it the only veritable poultry farm of which we ever heard.

Another machine worked upon the 'Hydro' system is that of Assinare, of Lausanne, which in most respects resembles the first machine of Christy. Eduard Löhr, of Hanover, exhibited a hundred-egg incubator at the International Exhibition, at Hamburg, in 1883, which we examined. This consisted of a square case, provided with a window in the front, and the eggs were heated from the top and sides by means of a hot-water tank.

At the Danish Exhibition, in the same year, we noticed a useful machine made by Selmer, of Aarhus. In this incubator the temperature was regulated by quicksilver, which at 104° rose, and, by its action upon a lever, admitted cold air.

Mr. Henry Tomlinson, of Gravelly Hill, Birmingham, has for long made an automatic incubator of considerable merit; and Mr. James Stocks, of Birmingham, has invented a machine in which both bottom and top heat are supplied.

It was not for a considerable time after the introduction of the machines referred to above that Mr. Hearson discovered the system of regulation which he has applied to his incubators. His system is based upon the expansion of liquids at the boiling point. Bearing in mind that this point varies in different liquids, such as water, alcohol, and mercury, the inventor applied himself to the task of producing, evidently by combination, a liquid which would boil at 104°. The composition of this liquid is, naturally, a secret, but it has now been used for a considerable time with absolute success. It will be understood by the ordinary reader that, if a vessel is filled with water, and afterwards hermetically sealed, it will, unless particularly strong, burst upon being subjected to a temperature of 212°; but if the vessel in which the water is inclosed

happens to be flexible, it will expand considerably. The capsule used for the purpose of regulation in Hearson's incubator is, to all intents and purposes, an hermetically-sealed

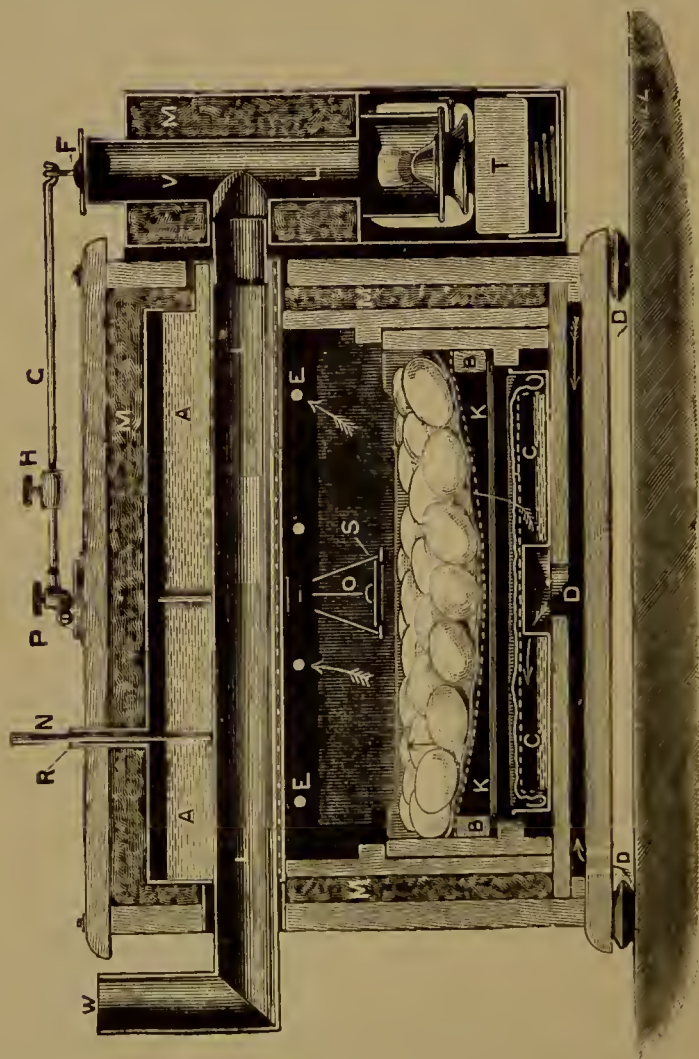


FIG. 42.—Hearson's Incubator.

vessel, composed of brass. It incloses a small quantity of the liquid referred to ; and this, when subjected to a temperature of 104° , at once boils, and expands in the same way as in the flexible vessel filled with water. This capsule is flat, and is

fixed upon a small table in the space between the egg-drawer and the tank of the incubator, where it is shown in the illustration (Fig. 42) at s. The incubator resembles a square box, with a tank at the top (A A), and the eggs at the bottom, resting in a nest (K), or tray (B, B), which is placed above the water-tray (C, C). It is heated by means of gas, or a petroleum lamp (T), but not exactly upon the systems adopted in the machines previously described. The heat from the lamp ascends through a chimney, or flue-pipe (L, L), which turns at right angles a little above the lamp, and runs completely through the machine; it also continues upwards, as shown at v, the top being covered by a damper (F). When the lamp is lit, the heat, unable to find its way out at F, is carried through the whole length of the flue (L); but immediately this wave of heat arrives at a certain point, the damper is opened by the regulator, and it is immediately carried outside, not passing through the machine at all. By this means the temperature is lowered at once, and the damper quickly falls into its place. The manner in which the damper is moved is as follows:—A thin piece of stiff wire (O) is carried from the top of the machine, through the tank, by means of a tube, until it reaches the capsule, upon which it rests; but immediately the capsule expands, it lifts the wire, and this, acting upon the lever (G) at once raises the damper. P is a screw, and H a small lead weight which enables the operator to regulate the temperature at which he desires the capsule to act. N is a thermometer for showing the temperature in the tank, and R is the tube by which the tank is filled with water. The holes at E are for ventilation, fresh air entering the machine at the three spaces shown at D. The tank is packed in non-conducting material, shown at M. The residual products of combustion are discharged at the end of the flue (W). In practice, the flame of the lamp is generally turned a little higher than is absolutely necessary, in order to provide against

a fall in temperature of the external air. There is no danger in this, for the surplus heat is all carried out from the chimney (v).

An incubator has been made for some years by Mr. John Owen, but in this case a regulator is not used. The machine is practically a hydro-incubator, the heat of the water in the tank being maintained by a paraffin lamp, or gas. The machine is in the form of a square box standing upon four legs. The tank is filled by pouring in water at the top, and the same aperture is used for ascertaining the temperature of the water, which varies considerably between the top and the bottom. In front is a gauge to assist the operator in ascertaining when the tank is sufficiently full. The lamp is placed in a receptacle at the right-hand side, thus preventing the necessity of continually taking out water and refilling the old hydraulic incubator. The withdrawal tap is at the bottom, just over the egg-drawer, and the temperature shown by water taken from this tap, as well as by the water at the top of the tank, is an indication of how the machine is working. Mr. Owen states that it is necessary to attend to the machine every twelve hours. Of this there can be no doubt; but we should question very much whether still more attention than this is not necessary. Moisture is afforded by means of two trays below the egg-drawer, which are filled with clean sand, or earth which has been previously baked to 'destroy any impurities which may exist.' The inventor, however, states that water may be used if it is replaced every twelve hours. The bottom of the egg-drawer itself is of perforated zinc; thus, moisture is brought directly into contact with the eggs, which lie upon a blanket. Ventilators are provided, but it is suggested that they should be closed for the first seven days, the eggs being aired by placing the drawer on the top of the machine. Mr. Owen thinks it necessary to change the eggs about the drawer, in order that all may obtain the advantage of position, if any

there be ; and that they should be turned regularly. To this end he suggests that every egg should be marked with figures, such as 1, 2, 3, 4, round the diameter, commencing with the figure 1, which is shown on every egg. When they are slightly turned, figure 2 will show in each instance, and then figure 3, and so on.

An extremely simple machine, exhibited at the London Dairy Show, in 1885, by Messrs. Ellis & Tyler, is called the 'Island-Nest.' Its chief merits are its low price, the

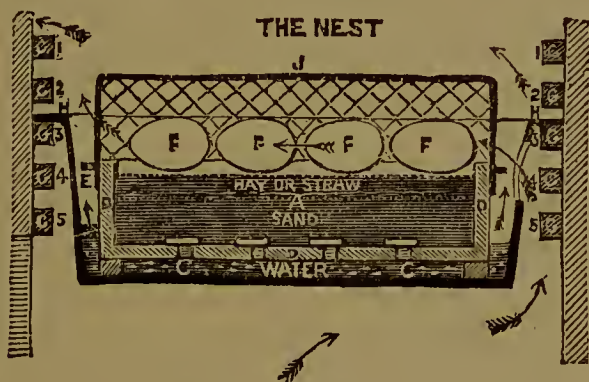


FIG. 43.—The Island-Nest.

fact that it can be converted into an artificial mother, and the system of regulating the temperature, which, although neither so certain nor ingenious as that employed in the regulators which have been referred to, is probably useful, and certainly meritorious. The incubator itself is similar in shape to those previously described. There is a tank over the eggs, which is heated by a lamp at the side ; and the inventors state, in their instructions for working, that the water should always be boiling, and the tank full. They claim that it is necessary, in order to hatch with success, that the nest (J) should be as nearly like the natural nest of the hen, as she makes it in the hedgerow, as possible ; and, to this end, they provide a receptacle (D), filled with sand (A), and covered with finely cut hay. This nest is placed in a reservoir made of zinc (H),

the latter being afterwards filled with water, so that, in a few moments, the materials are quite damp, and the eggs are laid in. The space in the machine below the tank is larger than usual, and on each side are a number of flanges. If, for instance, the nest with the eggs is hung upon the bottom flanges, and the temperature is found to be too low, it is removed a stage higher, and can, if necessary, be lifted to the top flange, when it will receive a maximum amount of heat. The lamp is an ordinary one, and the tank is a common circulating boiler. In the illustration (Fig. 43), the eggs are shown at *r*, in the nest, resting on the flange *g*, and the water bottom is shown at *c*, the large arrows denoting the manner in which the eggs are ventilated.

Among the numerous American machines—we are informed that there are at least thirty different makes—we have selected the following for description. The manufacturers of the 'Perfect Hatcher' state that most of their orders are for large establishments, with hatching capacity of from 3000 to 10,000 eggs at a time. They claim that the three great essentials of a perfect incubator are heat, moisture, and ventilation. The 'Perfect Hatcher' is made of wood, paper, galvanised iron, iron gas-pipe, copper, brass, glass, silver, indiarubber, and steel. The case is made of kiln-dried wood, and combined with paper, and dead-air space of one inch enveloping the entire machine. It is claimed that this combination offers the greatest resistance to heat and cold of any known method, and its non-conducting power is so great, that you can place the Hatcher in a room where the temperature averages 50° and regulate it. The temperature may there fall to zero, or go up to 90°, the Hatcher maintaining a perfectly uniform heat in the egg-chamber. The regulating apparatus is not attached to the wood, but to the iron part of the machine, which is the very best conductor of heat and cold in existence. The application of heat is by hot water in

a galvanised iron tank, and the heat is deflected to the eggs, giving them a top heat, as applied by the hen. The tank provides a perfect circulation of the water, without which a uniform heat is impossible. Water may be heated to the boiling point, but if it does not circulate it will not impart the proper heat. After circulating through the tank, it passes downwards, through pipes at the rear end, and then through others, situated 14in. below the tank, and back again to the boiler, thus completing the circuit. These lower pipes serve three distinct purposes, one of which is to complete the circulatory system. The regulating agent is electricity, and its action is as follows:—There are two regulating screws on the right hand, while on the left hand is the clockwork and lever connected with the lamp. In the centre is the box containing the battery, and in front is the ventilator. When the heat in the egg-chamber reaches a temperature of 104° , you turn on the left screw until it strikes the lever, thereby completing the circuit. The magnet pulls down the armature, releasing the clock, which instantly moves, opens the ventilator, and turns down the lamp-flame, thus effectually checking the heat, by allowing the hot air to escape, and shutting off the flame, which is the source of the heat. When the heat falls a quarter of a degree, you turn the right-hand screw until it strikes the lever as before. The opposite circuit is completed, the ventilators close again, and the lamp-flame is turned up. This action occurs every five to fifteen minutes, and will go on indefinitely. The regulator is operated by two electric circuits, one to open, and the other to close, the ventilators, the object being to save battery power. When the circuit is completed, it is instantly broken again, or as soon as the clock wheels move, which is instantaneous; hence, the consumption of battery power is only for a second, each time that the ventilator opens or closes. The application of moisture is by means of open pans of water, placed on the hot-water pipes before

mentioned, this being the second purpose that these serve. These pans are directly under the egg-drawers, the hot pipes warming the water in the pans sufficiently to cause evaporation, to overcome the dry heat, and to temper and soften the air of the egg-chamber. When the ventilator or the top opens, which, as above stated, it does every five to fifteen minutes, the pure air from the outside rushes in at the bottom ventilators, passes over, and is warmed by, the hot pipes, and then upwards through the eggs, and out of the top ventilator. The carbonic acid gas is displaced by the oxygen, and, becoming heavier than air, falls to the bottom of the machine, and is carried out by the cross currents of air which are always passing through the bottom ventilators when those above are closed. The egg-chamber is 14in. in depth, the object of which is twofold: 1st, it allows a large air space, by which the air can be kept of a purer quality; 2nd, it admits of an important principle—viz. the practicability of maintaining different degrees of heat in the various drawers, but all in the same chamber. The advantage of this plan is, that eggs can be placed in at any time—in fact, they can be placed in every day, chickens hatching at the same time.

The 'Favourite' is another excellent incubator, which is largely used in America. This is not unlike the last-named in some points. It is heated by means of hot water in a galvanised iron tank, attached to which is a copper heater, the lamp chimney being a copper flue passing directly through the water. The eggs are warmed by top contact, the tank being immediately above. The water, after circulating through the tank, passes down through pipes at the corners, and then through a coil of pipes which encircle the space in the bottom egg-drawer directly beneath the evaporating pan. It then enters the bottom of the heater, is reheated, and returned to the tank, completing an entire circuit. Moisture is afforded in a similar manner to that described in the 'Perfect Hatcher.' The



SILVER-SPANGLED HAMBURGH HEN.

regulator consists of a group of bars in the egg-chamber, these being composed of a material very sensitive to temperature. It graduates the flame of the lamp, and opens and closes the ventilator. It is regulated by a thumbscrew on the top of the machine, which permits the egg-chamber to be maintained at any particular temperature. When adjusted, the expansion bars are affected by the heat, and, acting upon an escape lever, release an arm which passes from one side of the lever to the other, turning down the flame, opening the ventilator, and allowing the hot air to escape from the egg-chamber. A reverse action does not take place until the heat has fallen nearly a degree. This movement takes place every fifteen to thirty minutes, and continues by means of power which is transmitted by a simple weight. There is neither clockwork nor battery in the 'Favourite.'

The 'Eureka' is a machine manufactured by Campbell, of West Elizabeth, Pennsylvania. It is provided with a galvanised iron tank, and copper boiler and pipes, working upon a principle common to almost all machines; but, in addition, there are two features which are especially valuable. One is the regulator, which appears to be almost identical with that in Christy's machine, and has now been in use—having proved highly successful—for some years. This is a bar, made of an expansive metal, connected with a damper over the lamp, in such a way as to close and open it as the temperature rises or falls. The other feature is a self-regulating egg-turner, which consists of a clock, placed, in a case, on the top of the machine, and which is claimed to do its work thoroughly well. The inventors state that, of 4000 eggs, turned every twelve hours, the result was a hatching of 80 per cent. of the fertile eggs; while, of 4500 eggs turned every six hours, 87 per cent. were hatched.

The 'New Centennial Incubator,' another American machine, is claimed to be made upon the lines of the original

'Centennial' and the 'Acme.' It is provided with a regulator (stated to be new, and entirely different from that in any other machine; but we believe it to be similar to that described in the 'Eureka'), regulating the lamp to the required heat, the flame varying according to the temperature of the atmosphere. It is, as seen in the engraving (Fig. 44), extremely simple in manufacture, the tank, which is of galvanised sheet iron, being heated, in the ordinary way, by a lamp on the outside. The regulator can be adjusted to give any degree of heat. A

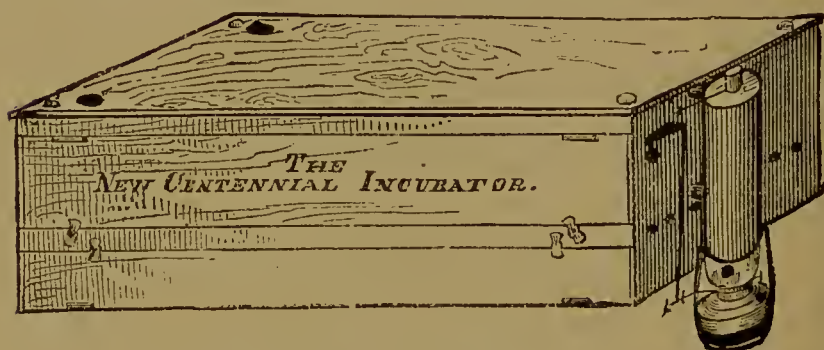


FIG. 44.—The New Centennial Incubator.

current of air enters the machine close to the tank, is heated before it reaches the eggs, and is then drawn to the four corners of the egg-chamber, and carried out of the machine. There is an evaporating pan for the supply of moisture, this receiving a gentle heat from the return flue, and supplying constant vapour under the eggs. The eggs themselves are laid in trays, which are turned, automatically, in a few seconds, once in every six hours. This incubator is provided with a chicken nursery under the egg-chamber, in which newly-hatched chickens can be kept for a week or more. It is heated by the flue which carries the hot water from the tank back to the boiler, and the chickens are heated from above, not from below.

The most primitive incubator of which we have heard is

that known as the 'Jaques,' produced at Metuchen, New Jersey, and illustrated at Fig. 45. As this can be made by almost any fairly ingenious person, a description is here given. It appears necessary to run the machine for some days before it is entrusted with the eggs, that the operator may be fully able to control it by practice. The eggs should be moistened slightly every day by sprinkling warm water upon them, and after the sixth day they should be turned daily. In making the machine, the following articles are required: A good sugar barrel; a round tin clothes boiler about 12in. deep; a shallow tin milk pan, and a kerosene lamp, with chimney. Have a barrel without a head; place in it the boiler, which must be in diameter nearly the size of the barrel, so that it can be supported in its place by its rim resting on the edge of the barrel. The pan must be of such a size as, when it is placed in the boiler, will leave a space of about 5in. between it and the bottom of the boiler. It will be necessary to solder the pan in this position. The space between the pan and the boiler must be filled with water, which can be done by punching a small hole in the side of the pan, near the top, and inserting a funnel. It will not be necessary to refill for three weeks, as the evaporation is slow. There should be a door in the side of the barrel, near the bottom, of sufficient size to admit the placing of the lamp under the boiler. The outside of the barrel must be covered with four or five thicknesses of paper, well pasted on, to secure heat being maintained. Next bore two 1-inch holes in the lower part of the barrel, one on each side, with tubes running from them to the base of the burner of the lamp, in

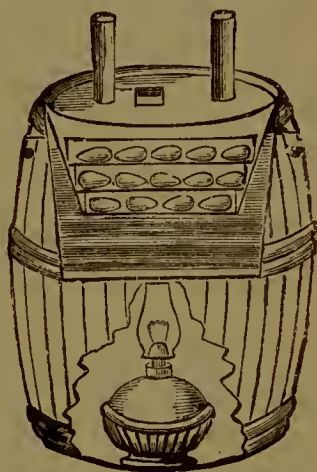


FIG. 45.—Jaques Incubator.

edge of the barrel. The pan must be of such a size as, when it is placed in the boiler, will leave a space of about 5in. between it and the bottom of the boiler. It will be necessary to solder the pan in this position. The space between the pan and the boiler must be filled with water, which can be done by punching a small hole in the side of the pan, near the top, and inserting a funnel. It will not be necessary to refill for three weeks, as the evaporation is slow. There should be a door in the side of the barrel, near the bottom, of sufficient size to admit the placing of the lamp under the boiler. The outside of the barrel must be covered with four or five thicknesses of paper, well pasted on, to secure heat being maintained. Next bore two 1-inch holes in the lower part of the barrel, one on each side, with tubes running from them to the base of the burner of the lamp, in

order that the lamp may have a supply of oxygen to support the flame. Then make three $\frac{1}{2}$ -inch holes near the top of the barrel, to allow the gas to escape. The cover must be lined and wadded, so that it will fit tight to the boiler—then the heat cannot escape; and a hole must be cut in the cover (3in. \times 4in.), with a piece of glass pasted over it. Directly under this place the thermometer (which can lie on the upper shelf of eggs), and then bore two 1-inch holes through the cover, and insert a tin tube in each, for the purpose of ventilating the egg-chamber. Inside the pan is the egg-chamber, which is of sufficient depth to allow three layers of eggs. The bottom is covered with a thin layer of cotton, on which the first layer of eggs is placed; and at equal distances apart, around the edge of the pan, are three blocks of wood, about 2in. square, on which rests a round sieve with $\frac{1}{2}$ -inch or $\frac{3}{4}$ -inch meshes. On the top of this put another sieve, larger than the first, so that the rim of the lower one will support it. The bottoms of the sieves are covered with some light material, so that the heat can pass up through it. The tubes to supply the lamp with air can be made by wrapping a piece of hardware paper round a broom-handle three times, and pasting it together: after the paste becomes dry, slip the tube off.

Messrs. Axford Bros., of Chicago, have for some years exhibited what they call their 'Glass Hen and National Incubator.' The same firm have more recently manufactured a battery of incubators, which has frequently been exhibited in Canada and the United States, and from which live chickens are sold as fast as hatched, in many instances as many as 700 being sold in a single day. This machine is worked in a similar manner to one or two of those already described, but its peculiarity is, that a boiler is placed between two stacks of machines in the large sizes, four incubators being placed, one above the other, on either side.

The 'White Mountain Incubator' is an exceedingly

ingenious machine, although it is questionable whether the regulator is as perfect as those based upon the thermostatic system. In the illustration (Fig. 46) the water in the boiler (I) is seen to be heated by the flame from the lamp (K). Part of the chimney extends into the concave bottom of the boiler, which is so constructed that but very little of the heat is lost. The water, after making a circuit of the tanks, is brought back to the boiler again, where it is re-heated,

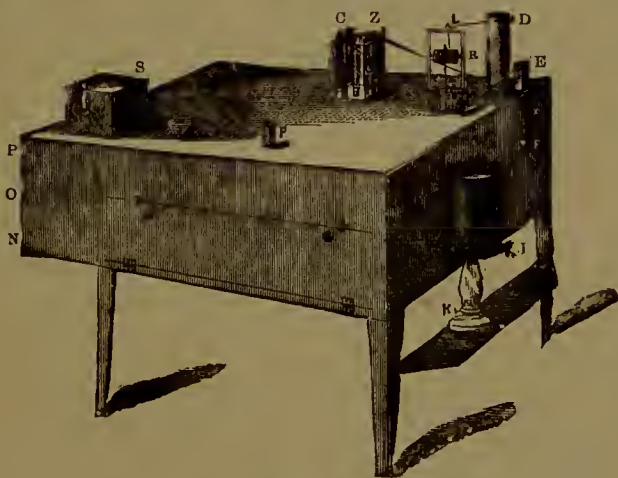


FIG. 46.—The White Mountain Incubator.

and carried by the pipes (G, H) into the tanks. The tanks are so constructed, that the parts in which the water would naturally be colder are given extra circulation, so that a uniform temperature is obtained in the egg-drawer below. The main tank has a tube (F), in which a thermometer is inserted, so that the temperature of the water may easily be seen. This tank covers very nearly all the surface above the egg-drawer. The bottom of the egg-drawer is of wire netting, this providing free circulation of air in all parts of the drawer. At the left of the door are certain parts auxiliary to the machine proper. First, against P is a narrow tank, running the width of the machine. This is supplied with water direct from the boiler beneath, and, warmed by it, is an end drawer,

in which the eggs are placed to be warmed to the temperature of the main drawer. Eggs that are about ready to hatch are also placed here, and the chicks remain until they are dry and strong. Beneath the end drawer is the moisture-chamber (against *M*). In the bottom of this chamber is a shallow pan, into which water is constantly dropping from the small reservoir (*s*) on the top of the case. As soon as the water rises to such a point in the moisture-pan, it drops into a small tank beneath the machine, whence it can be emptied into the tank (*s*) whenever the water has run out. All the air that enters the egg-chamber first enters the moisture-chamber, and becomes thoroughly moisture-laden. It is then carried into the egg-chamber and distributed, making its exit at the ventilator and also through the large tube at *D*, whenever the valve is open. The parts of the regulator are shown by *B*, a battery; *z* and *C*, the two poles of the battery; and *M*, an electro-magnet. The tube (*x*) on the end of the machine extends into the egg-chamber. This tube is filled with mercury, and into it one of the battery wires extends, together with a connecting wire (*E*). As soon as the mercury rises to the point at which *E* is set, making the circuit, the electro-magnet (*M*) becomes a magnet, and pulls down the armature (*A*), which is suspended from the roller (*R*), bringing forward the long lever (*L*), which in turn opens the valve at *D*, and keeps it open until the mercury falls away from *E*, thus breaking the circuit, when the valve at once falls into place again. The temperature is always shown by the mercury column, which extends through the case, against the front part of the frame on which *E* slides. All that is necessary in setting the regulator is to fasten four wires together, and put the battery and magnet in the place marked for them. *J* is the boiler tap.

It has become quite common to use artificial mothers in connection with the incubator, although this is not necessary, for we have known highly successful breeders who preferred

to place the chickens they had hatched under hens or turkeys. The mother, however, is now quite common, as it is simple in the extreme, and obviates much trouble and difficulty, although it is sometimes found anything but easy to teach the chickens to feed. There are various types of mothers, but they all work upon the same system, being heated either from a reservoir, or boiler of hot water, which is fixed either at the end, the top, or the end and sides of the machine. In some cases, strips of carpet, flannel, or cloth are hung from the top of the interior of the mother, but upon the whole we prefer

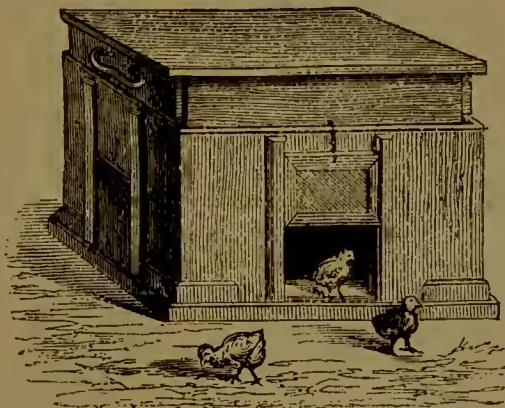


FIG. 47.—Voitellier's Artificial Mother.

that there should be nothing of the kind—nothing, in fact, beyond the warmth created by the hot water. We have known some of the most successfully reared birds kept in their early stages next to an ordinary 4-inch hot-water pipe in a greenhouse, with no other protection than an old box; and although some makers have attempted to imitate the softness of the hen's body-covering, there is no reason to suppose that this has any influence in better warming or nourishing the chickens.

Voitellier's Artificial Mother is simple in the extreme, and is easily taken to pieces for transport or cleaning. The floor

and sides are of wood, and there are three openings, one being for ventilation. The hot water is contained in a zinc tank, which is placed above the chickens, and embedded in sawdust. The sides and roof of the chickens' apartment are covered with strips of velvet.

Christy's Foster Mother is shown at Fig. 48. It is somewhat upon the old system, but has been—as most artificial

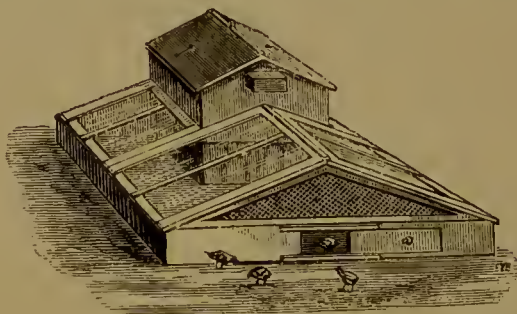


FIG. 48.—Christy's Foster Mother.

rearing appliances are—improved and modified. Crescent-formed piping is now used, which affords a maximum heating surface with a minimum use of water. The internal arrange-

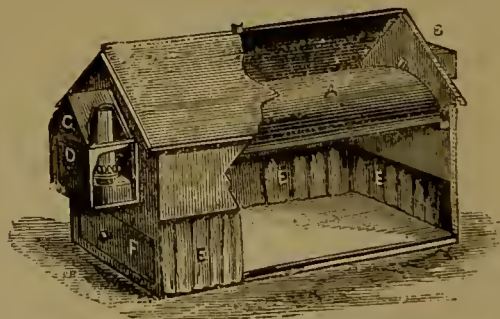


FIG. 49.—Christy's Foster Mother, showing Internal Arrangements.

ments of the Foster Mother are shown at Fig. 49. The crescent-formed pipe is shown at A, this being above the backs of the chickens, and radiating the heat upon them. The cistern is shown at B, and this is always kept half full of

water. At c is shown a screen, at the back of the Mother, within which are the lamp and circulating pipes. d shows the door through which the lamp is removed. Flannel is hung round the Mother, and this is shown at e. There is a drawer (f) at the back, which is taken out in order to cleanse the interior. The lamp burns for twenty-four hours, maintaining a fairly regular temperature.

Hearson's Foster Mother (Fig. 50) is ingenious, and has been worked with success. It combines the hot flue and the hot-water systems of heating the chicken apartment, maintaining the advantages, without the faults, of either. A paraffin lamp



FIG. 50.—Hearson's Foster Mother.

is used outside the machine, the heat from which is conveyed to the water by means of a circulating flue similar to that adopted in the incubator made by the same firm. The Mother takes to pieces for packing into a small space, is well made, and is provided with glass and wire-covered runs.

CHAPTER V.

DISEASES OF POULTRY.

As poultry fanciers and breeders have generally made a practice of treating the various ailments of their birds themselves, a work of this kind would not be complete without it contained some directions calculated to assist those who refer to it. We therefore offer a few succinct remarks upon each form of disease, and suggest some practical remedies which have been found successful in the poultry yard. The proper circulation of the blood is a primary condition of health, and any irregularity is quickly followed by some form of sickness. Cold, damp, dirt, and foul air, are all active agents in the destruction of health. The first two prevent a normal circulation in the affected parts, and the last two poison the blood, developing roup, abscesses, and other fatal diseases. The whole of these agents also affect the nervous system, depressing the brain and the action of the heart, and affecting the lungs and the mucous membrane ; more especially the passage of dirt, or dirty food, through the crop. Some diseases among poultry are so common, and their nature so well understood, that many capable amateurs—men who fairly understand the physiology of the fowl—prescribe and use their own remedies. Others, again without any thought as to cause and effect, use the medicines prescribed in any poultry book ; or, if they do not possess one, adopt the old familiar remedy—rue and butter—which, according to tradition, cures all the diseases of poultry.

We do not propose to deal at great length either with the description of poultry diseases in general, their diagnosis, or the prescribed remedies for them, but to deal concisely with a few of those complaints which better present possibility of cure at the hands of the poultry breeder. To write minutely upon the remainder would be a mere waste of time, for a long experience has shown us that there is little success to be attained in the treatment of poultry when they are once attacked with the majority of specific diseases; and that with others, although a bird may be cured after a considerable waste of time and money, it is subsequently useless either for consumption or exhibition purposes. A mere ailment, promptly attended to, will usually yield to Nature and good management, but an absolute disease is something of quite a different character.

The following is a list of medicines which will be found useful in a poultry yard, and which should be always kept at hand, bearing in mind that they are purchased much more cheaply in large than in small quantities :

Calomel.	Jeyes' Fluid.
Carbolic acid.	Laudanum. The bottle containing
Carbolised oil.	this should be labelled 'Poison.'
Castor oil.	Parrish's Syrup of Phosphates.
Caustic (nitrate of silver).	Pernanganate of potash crystals.
Cayenne pepper.	Rhubarb.
Chalk (prepared), for diarrhœa.	Sulphate of iron.
Charcoal.	Sulphur ointment.
Chlorate of potash.	Tincture of iron.
Chlorinated soda.	Tonic pills.
Cocoa-nut oil.	Turmeric ointment.
Cod-liver oil capsules.	Vaseline.
Condyl's Fluid.	Zinc ointment.
Ground ginger.	

For the guidance of our readers we shall class the ailments and diseases of poultry as follows :

1. *Diseases of the Lungs and Air Passages.* — Gapes,

common cold, roup, diphtheria, bronchitis, and consumption of the lungs. Of these complaints, the two last-named need no description in a work of this nature, for as both, in practice, are incurable, it is useless to prescribe for them, or to attempt their cure.

2. *Diseases of the Organs of Digestion.*—Crop bound, relaxed crop, inflammation of the intestines, diarrhoea, and dysentery.

3. *Glandular and Skin Diseases.*—Scrofula, white comb, elephantiasis, bad moulting, vermin, &c.

4. *Diseases of the Brain and Nervous System.*—Apoplexy, paralysis, vertigo, deformities, and curvature of the spine.

5. *Diseases of the Limbs: Wounds, Fractures, &c.*—Broken leg, broken beak; wounds upon the comb, wattles, or body; cramp, bumble foot, and corns.

6. *Diseases of the Egg Organs.*

1. *Diseases of the Lungs and Air Passages.*—*Gapes.*—There is no disease more troublesome among young chickens than this when it has become fairly established. It attaches itself with great pertinacity to some yards, though it is quite unknown in others, and, indeed, fortunately, in most. Gapes resembles in some respects the parasitic diseases to which most of the animals of the farm are subject. It is due to a parasite which enters the mouth of the chicken, and establishes itself in the trachea, or windpipe, causing the bird to gape continually in its efforts to dislodge it. Unless the bird is unusually strong, or the parasite is removed, it speedily dies. It is useless to adopt medicinal treatment, but high feeding and tonics may be used to maintain the strength of the bird. Some persons have succeeded in removing the gape-worm by passing a small barbed feather down the windpipe, twisting, and withdrawing it; but this is generally either dangerous or impracticable. The fumes of carbolic acid have

been found speedily successful; but great care is necessary to prevent the suffocation of the chicken, which must necessarily inhale the gas in order to kill the worm. A good plan is to confine the chickens in a dry pen, with a boarded floor, upon which quicklime is strewn. This frequently has the effect of destroying the parasites.

Cold, or Catarrh.—This is an ailment quite as common among fowls as in the human subject, and quite as easily remedied. Warmth, a dry roost-house, and a change of food—which should be stimulating and warm—are generally sufficient; but the feeding should be maintained with great regularity. If there is a running at the nostrils, the injection of a little Condyl's Fluid through the roof of the mouth will speedily prove effective.

Roup.—This disease has been treated of at great length by different writers. In its nature it is midway between catarrh and diphtheria, for, while it commences with the symptoms of a severe cold, it runs, if unchecked, into a disease which strongly resembles that which every poultry fancier dreads. Whenever there is a discharge from the nostrils which is offensive, immediate action should be taken, and the bird isolated. Its mouth, eyes, and nostrils should be washed with a solution of permanganate of soda, or diluted Condyl's Fluid, and it should be provided with rich food, given, if necessary, by hand, in the form of boluses. Chopped meat, custard, cod-liver oil capsules, and tonic pills, may all be used with good effect; while to the drinking-water should be added a few drops of tincture of iron. If attention is not given to a fowl affected by roup, pus speedily forms in some part of the head—generally between the nostrils and the roof of the mouth, and sometimes in the corners of the mouth, in the beak, or in the eyes. This should always be removed with care, to prevent the blood coming, and the place dressed with the Fluid. When pus is abstracted, it should not be forgotten to entirely

remove the substance in which it appears to form, otherwise it will usually come again. Chlorinated soda, or a solution of carbolic acid (in the proportion of one to fifty), is also useful in checking roup. Where a bird is badly affected, it should, for the sake of the others in the yard, be killed, inasmuch as, although it may be cured—for roup is not so dangerous a disease as diphtheria—it is seldom or never of any subsequent value. Roup rarely finds fruitful ground in the system of a strong, vigorous bird; the more fragile breeds, and delicate specimens of other varieties, are the ones principally attacked. Mr. Burnell, who has had considerable experience with Dorkings, found a mixture of copaiba and oil of cubebs effective; twenty minims of the mixture were put into a capsule, and three of these were given daily. Another breeder suggests the use of a very common remedy for a cold—tincture of aconite and nitrate of potash—a teaspoonful of each being added to a pint of drinking-water. In bad cases he gives, in addition, three drops of the tincture twice a day.

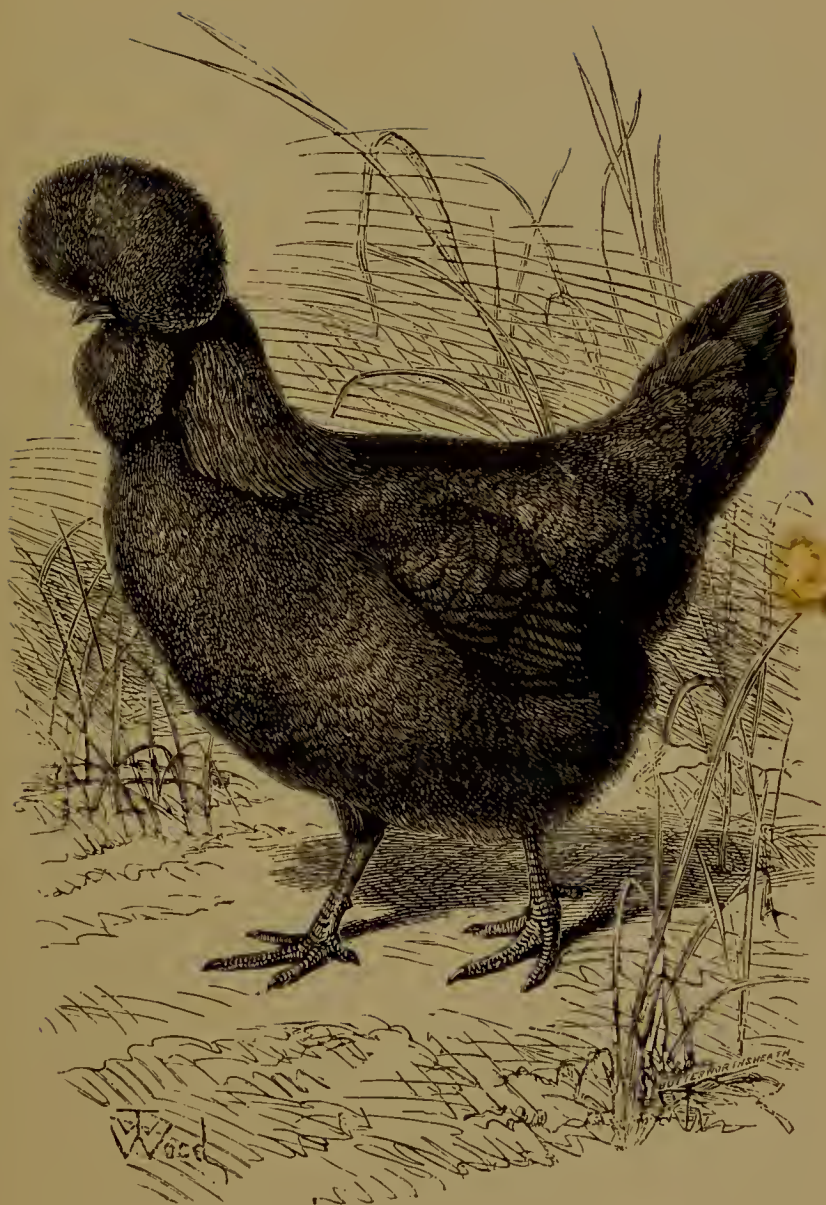
Diphtheria.—There is no disease to which poultry are subject which approaches diphtheria in virulence and danger. A few years ago it was extremely prevalent, and was disseminated about the country through the medium of exhibitions. This disease is so contagious that a fowl occupying a pen next to an affected bird is almost certain to catch it. In our experience of diphtheria, which has been by no means slight, we have found that severe cases are almost invariably fatal, and that it is far better, both for the sake of saving trouble, and preserving other birds in the yard, to kill and bury the affected specimens at once. So great is the danger of carrying disease to healthy birds, that it is not safe for an attendant to feed or touch them after handling those suffering from the complaint, even though he be careful to wash his hands in a disinfecting fluid. The contagion is carried by the boots and clothes of a person coming in contact with

diseased birds, or with the apartment in which they are confined; and the result of our experience convinces us that there is scarcely any precaution which will warrant the preservation of birds badly affected with diphtheria, however valuable they may be. Professor Hill, who has devoted much attention to this subject, says that the disease usually commences with general debility, followed by catarrhal indications, and that the nostrils and eyes subsequently discharge a sanious liquid, while a sticky material issues from the corners of the mouth. This is certainly often the case; but we have seen numbers of cases in which no discharge was observable before the formation of the false membrane. A bird, apparently well one day, may, on the next, be discovered with the tongue and mouth almost completely enveloped with a thick yellow membrane. This is sometimes removed with great difficulty, causing severe bleeding, and the mouth swabbed with dilute nitrate of silver; but all such cases are fatal, and we recommend that no attempts be made to cure them. In the first stage of diphtheria, the specks of false membrane may be removed with a wooden spatula, the part cauterised, and the mouth and nostrils subsequently syringed with permanganate of potash, or Condyl's Fluid; the system of the bird should also be thoroughly sustained with cod-liver oil capsules, chopped meat, or egg and milk. The great point is to maintain the system until the disease has run its course. The bird should be kept in a warm, moist apartment; and, when a number of specimens are being attended to at the same time, a fire should be lit, and steam constantly disseminated through the room by means of a bronchitis kettle. Dr. Hill recommends that, when specks appear in the mouth, the parts should be painted with tannic acid, 5grs., and glycerine, 1oz.; or with a solution of nitrate of silver, 10grs. to the ounce. Where there is an exudation from the mouth, there is no better plan than to continually cleanse the latter with

carbolic acid (one part to fifty). Chlorinated soda has also been recommended for this purpose, the solution being composed of one part to ten. When diphtheria appears in a yard, on no consideration should the same person feed the healthy fowls and attend to the diseased ones. The attendant upon the healthy birds should, every night, examine all the fowls when upon the perch, and remove those which show the faintest indication of disease. The others may, with advantage, be regularly disinfected, by means of carbolic acid or Jeyes' Fluid, sprinkled in their house, and by using Condyl's Fluid to mop their heads and mouths.

2. Diseases of the Organs of Digestion.—*Crop Bound*.—

This ailment frequently originates from an abnormal state of the system of the fowl. Sometimes, however, it is caused by a stoppage, which prevents the food taken into the crop passing into the stomach. In the latter case the bird feels hungry, fills its crop with food of any kind, and is still unsatisfied. Its continued hunger causes it to eat almost everything in its way, and especially the straw in its hamper, when it is *en route* to or from an exhibition, until the crop becomes as hard as a ball, and the bird is scarcely able to stand from general debility. In cases in which the crop is only partially bound, a little warm water passed into it, and gently moved about with the hand, will frequently remove the stoppage; in others, there is no remedy but a bodily removal of the contents. To this end, a slit should be made in the crop, upon its upper surface. A button-hook, or any similar instrument, may then be passed in, and the materials—generally hay, straw, hair, or something of a similar character—extracted, piece by piece, until the crop is empty. It should then be carefully washed out with warm water, preferably mixed with a few drops of Condyl's Fluid, after which the bird may be fed with a few pellets of soft meal, and the wound stitched up. Great care must be taken in this operation, as there are two



CRÈVECŒUR PULLET.

membranes, and one must be sewn up at a time. If the bird is very weak, a spoonful of old ale may be given every few hours as a tonic. It should, moreover, be kept in a cage, upon plain boards, where it is unable to obtain anything to eat, as it often happens that, when set at liberty, it immediately commences to gorge a second time.

Relaxed Crop.—This is rather an eyesore than a disease. It is frequently seen in exhibition poultry which have been highly fed; but there is no remedy for it.

Inflammation of the Intestines.—This is a disease which is often owing to bad feeding, cold, or filth. It is dangerous in the extreme, and treatment is seldom successful. When it has fairly set in, it is hopeless to deal with it, and the most profitable plan is to kill and bury the bird at once, for it is a mistake to suppose that a fowl so affected is edible, even when killed at the outset of the disease.

Diarrhœa and Dysentery.—Diarrhœa is a complaint which is frequently easily cured, but which, on the other hand, everything often fails to arrest. When it occurs in a valuable fowl, every effort should be made to ascertain from what cause the looseness arises, as upon this depends the treatment and its success. Diarrhœa is generally caused by bad housing, where the bird is exposed to wind and wet; also by dirt, which, adhering to the food, or taken into the system with water, practically acts as a poison; by improper feeding; or, lastly, by the state of the liver. Some authorities have recommended that the bird should first of all be purged with castor oil, in order that the cause of the complaint may be removed. This is a very good plan where it arises from foul drinking-water, or dirty food, but should not be adopted in any other case. It sometimes happens that diarrhœa has set in, obtained a firm hold upon, and considerably weakened, the bird before it is discovered. In such an event, care should be taken before the constitution is too greatly lowered by the purging process.

Whether castor oil is administered, or a medicine which we have frequently recommended (particulars of which are given below), laudanum should be added. The usual dose is half a teaspoonful of the oil to one drop of laudanum; or of the prescription referred to—calomel, 2grs.; rhubarb, 2 grs.; and laudanum, 2 drops, made into six pills, one of which may be given twice daily. A valuable addition may be made in the shape of charcoal, a pinch of which may be given with the above, or in the form of a capsule. A few hours after the medicine has been taken, half a teaspoonful of brandy may be given to the bird, in a little water. The feeding should be nutritious and light, and, at the same time, of a binding nature. There is nothing better than boiled rice, or wheat flour, in which a little powdered chalk has been mixed. In either case, the food should be sprinkled with cayenne or ground ginger. The bird should have no meat, farinaceous foods being preferable; and the drinking-water should be rendered astringent with a little iron tonic. Milk is sometimes given with advantage; but in cases of diarrhoea a little carbonate of soda should be added, to prevent continued scouring from acidity, which sometimes sets in. Where diarrhoea is owing to an abnormal state of the liver, due to sluggish or inflammatory action, a pill composed of chalk and rhubarb, each 5grs., and cayenne pepper, $2\frac{1}{2}$ grs., may be given twice a day. This quantity will make two pills. Professor Hill recommends the addition of sufficient dilute nitric acid to the drinking-water to render it slightly tart, together with $\frac{1}{2}$ gr. of calomel, followed by castor oil in a few hours. In this case, also, the food should be plain, not stimulating, and preferably mixed with a few grains of chlorate of potash. Alum is sometimes found to act well when added to the drinking-water. In ordinary cases of scouring among healthy birds, there is nothing better than the prescription of chalk, rhubarb, and cayenne, a pill of which generally arrests it at

once. Young chickens are more difficult to deal with than older birds, and, as a rule, an outbreak of scour amongst them is caused either by dirty housing or dirty food and drink. It is not advisable to give them aperient medicines, but to feed them upon such a binding food as rice, which has been cooked in water until the hard grains have become partially soft. This, allowed to cool, and sprinkled with cayenne, is the best remedy we can recommend. Chickens, while in this state, should never have milk or meat, and their drinking-water may be rendered tonic. They should be removed to a clean run, and their roost-house, or coop, regularly disinfected with carbolic acid or lime.

Sometimes fowls are subject to dysentery, and, if the case is severe, the bird should be killed. For this complaint laudanum may be more freely used, the drops being increased as it is found that the bird can sustain it. There is, however, no better medicine than the prescription previously given, which includes calomel, rhubarb, and laudanum.

3. Glandular and Skin Diseases.—*Scrofula*.—Scrofula is a disease in fowls which is hereditary, and which appears, in some strains, with great regularity. In a yard where it appears, the efforts of the breeder should be directed rather to its eradication than to its cure. All birds belonging to a scrofulous family should be mercilessly sacrificed before they develop any symptoms of the complaint, and while they are still good for table purposes. It should be thoroughly understood that a bird in which scrofula shows itself, however healthy it may appear, is unfit for human consumption.

White Comb.—White comb is not exactly a disease, but a parasitic growth, which, unless checked, covers the entire surface of the comb, wattles, and face. It is common in some of the delicate exhibition strains of Hamburgs, and is very catching. It is seen in its worst form in unhealthy specimens which have been over-shown, and which are

peculiarly susceptible to attack. The best plan is to dress the comb with an ointment made of powdered brimstone and lard, or with turmeric and cocoa-nut oil. Carbolic ointment is also efficacious. In bad cases this disagreeable complaint spreads down the neck of the fowls, and attacks the feathers at their roots. Birds with white comb should always be examined, in order to ascertain if the feathers are attacked, as the whole body is soon covered with the growth. Nothing can be done except to dress the parts affected with either of the above ointments, and to thoroughly cleanse and disinfect the roost-house.

Elephantiasis.—Elephantiasis is a complaint of the same order as white comb. A parasitic growth, almost fungoid in its appearance, encrusts portions of the legs. It spreads rapidly, and is very contagious. Strong sulphur and carbolic acid ointment should be constantly applied. Indeed, it is only by persistent dressing every day that this growth can be removed.

Bad Moulting.—Difficulty in moulting is rather owing to an abnormal state of the system, or to weakness or delicacy of the constitution, than to direct disease. Great care should be taken that the bird is kept as warm and dry as possible, that it receives its full share of food, and that, in addition, it is given, twice daily, a tonic bolus, containing ground ginger and sulphate of iron, or a good feed of bread soaked in strong ale.

Vermin.—Poultry are usually infested with parasites of some kind, but the insect which causes the most trouble to the poultry breeder is the flea, which is common from the month of April until the end of summer. It is usually hatched in the sitting-house; and, however carefully this apartment may be cleansed or limewashed, fleas take possession of it in large numbers, if once brought upon the premises by means of a purchased hen which comes from a yard so infested. The poultry flea never appears until the

weather becomes tolerably warm; and then, having taken fair possession, it is the most troublesome insect to destroy which we can mention; it causes the hens to break their eggs and to leave their nests; also, the poultry attendant, upon entering the house, is attacked from the floor, and, indeed, from almost every part of the building. Prevention, in this case, is better than cure. Before sitting, every hen should be dressed, under the wings and thighs, with paraffin, or dusted with sulphur or insect powder. The nest-boxes, and every part of the hen house, should be well dressed, in spring, with lime-water, in which a small quantity of carbolic acid has been stirred; take care that the cracks get their proportion. The same dressing may be used for the ordinary parasites found upon the body of a hen, which, though disagreeable, are much less troublesome.

4. Diseases of the Brain and Nervous System.—*Apoplexy.*

Apoplexy is usually the result of an obstruction in the circulation of the blood, which causes a sudden rupture of one of the minute blood-vessels of the brain, and immediately occasions death. Hens are much more subject to this complaint than cocks, in consequence of the strain which their system undergoes at the time of laying. High and stimulating food is a great factor in promoting a tendency to apoplexy, and, therefore, robust and over-fleshy birds should be more carefully fed, especially if they are not active, or are unable to obtain sufficient muscular exertion. Some persons resort to bleeding through a vein under the wing, while others prefer the application of leeches to the neck. As a general rule, cases of apoplexy are seldom treated with success; but an attempt may always be made, inasmuch as, if it fails, immediate bleeding may be the means of saving the body of the bird for other purposes.

Paralysis.—Paralysis might almost be described as apoplexy in another form, as it proceeds, in some cases, from

a similar cause. It is, however, at times, caused by a blow. In either case it is hopeless to attempt a cure, and time and trouble expended with that end in view will be but wasted.

Vertigo.—Vertigo is a well-known disease in poultry, on account of the peculiar efforts made by the birds afflicted with it to walk straight. They frequently carry their heads over their shoulders, and continually run in a circle, occasionally falling to the ground in their attempts to preserve their equilibrium. Ferguson quotes the case of a bird examined by the great French physiologist, Flourens, who found, upon examining the brain of a bird which had been afflicted with severe vertigo, that a quantity of clear water lay under the investing membrane; the cerebellum was yellowish, with streaks of rust on its surface, and a quantity of coagulated matter, as large as a bean, in its centre. As apoplexy occurs from congestion, so vertigo is the result of inflammation, the one attacking the bird suddenly, and the other gradually. In treating vertigo, bleeding, and aperient medicine, may be resorted to in an early stage; but we always prefer to put the sufferers out of their misery at once.

Deformities.—Deformities in poultry are numerous, but the most important are those which relate to the spine, the tail, and the breast-bone. The last-named is very common, but cannot be considered a disease. It may be looked upon as a fatal defect in a breeding or an exhibition bird, and is in many instances caused by roosting at a very early age upon a narrow perch. Curvature of the spine, commonly called ‘crooked back,’ and which frequently causes the tail to be awry, is quite another matter. This is hereditary, and generally found in families which have been largely in-bred. The only improvement which can be effected in a bird afflicted with a wry tail, is to make a small cut upon the opposite side to the deformity, when the attraction of the muscle on each side of the wound, causing it to unite, will sometimes draw

the tail towards it. It is needless to say that there is no remedy for curvature of the spine or breast-bone. The same remark will apply to a wry or crooked beak, a deformity often met with in chickens. Young birds are frequently seen with legs which are not straight. The knees are bent inwards, or, as it is commonly termed, K-hocked. This may be remedied by careful and tonic feeding, especially by the addition of syrup of phosphates and bone dust to the food.

5. Diseases of the Limbs: Wounds, Fractures, &c.—A fractured leg in a fowl may sometimes be remedied, if taken in hand early, and if some little skill is displayed in fixing over the fracture a plaster of Paris jacket. It will be necessary to hold the bird in one position, and to prevent it moving the limb until the plaster has set quite hard.

When a bird is wounded, cut, or torn on the comb, wattle, or body, the place should invariably be dressed with Condyl's Fluid or carbolised oil. If necessary, a wound may be sewn

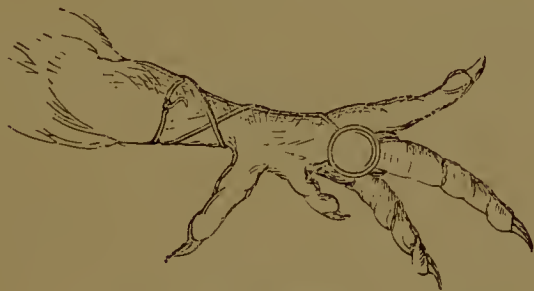


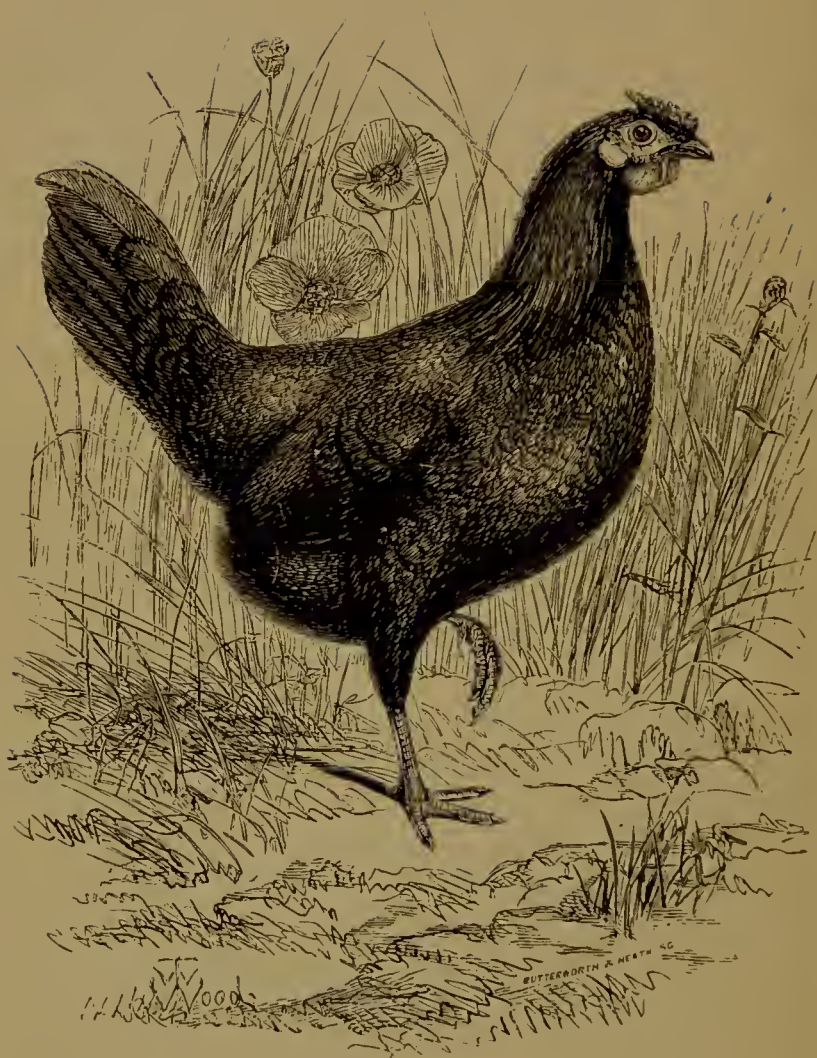
FIG. 51.—Pad for Bumble Foot.

up with a fine needle and silk without harm, and with every prospect of its rapidly healing, and the scar being completely covered.

Cramp in poultry is generally caused by cold and wet. The birds will usually recover if placed in a hamper of dry straw before a fire. The legs may also be bathed with a strong liniment of hartshorn, or with spirits of turpentine.

Bumble Feet, which are more common in large fowls than in small ones, are exceedingly disagreeable. Sometimes they are caused by the growth of a corn in the ball of the foot; at other times a quantity of pus is deposited, which it is necessary to remove before the bird can regain health. We know of no better plan than to open the foot with a knife, remove the pus with a blunt instrument, and subsequently cauterise the place to which it adhered with a nitrate of silver pencil. In this case the foot should be provided with a pad, which may be fixed as shown in p. 191, Fig. 51.

6. Diseases of the Egg Organs are of too complicated a nature to be treated with success by the ordinary poultry breeder. It will be within the knowledge of everyone well versed in the practice of poultry-keeping, that hens frequently lay eggs no larger than a pigeon's, and which contain either nothing but white, or a yolk without any attendant white. These eggs are the result of a strained state of the system, caused by over-excitement, or by over-stimulation of the ovary. In order that they may regain a normal condition, the hens should be very carefully fed upon soft, non-stimulating food. They may be allowed to run out upon the grass, but should not get access to worms and insect life, a low diet being highly desirable. The chief disease attending the egg organs is one which may be termed disease of the oviduct. In this case the oviduct is distended with layer after layer of the white of egg, which coagulates, forming a sort of tough, cheesy substance, which is not expelled, and which finally stops up the passage to the vent. It is then that death occurs. There is no better remedy than one grain of calomel and one-twelfth of a grain of tartar emetic.



BLACK HAMBURGH HEN.

CHAPTER VI.

FATTENING—PRESERVING EGGS—A CLASSIFICATION OF THE BEST FOWLS.

As a general rule, fowls, when required for the table, are taken up from the yard when in robust condition, and immediately killed; but we are of opinion that birds selected in this manner are much inferior to those which have been fattened by hand. Fattening is quite common in Sussex, and in some other parts of England, as also in the poultry-rearing districts of France; and there can be no question that the flavour and edible qualities of a properly-fattened fowl are superior to those of an ordinary bird, no matter how meaty it may be, which is killed in its natural state. All gallinaceous poultry is prone to produce flesh rather than fat, with the result that, unless the cooking is skilful, the meat is dry and flavourless, is eaten with less relish, and is certainly not so valuable a diet as when accompanied with a certain proportion of natural fat. We have ourselves seen the system, adopted in Germany, of rearing and fattening very young chickens, which are taken from the mother at an early age, and confined, in companies of twenty, in cages (Fig. 52). For this number of birds two cages, each about 3ft. square, are usually provided, a sliding door passing between them. The floor of each cage is well sanded, and a food trough runs the entire length of each. This trough is filled thrice daily with a mixture of sour milk and buckwheat meal. Sometimes skimmed milk and boiled rice are given; at others, oatmeal or barley meal is

supplied, the birds getting a variety. After the morning meal, they remain in one of these compartments until the next meal is ready. The partition is then withdrawn, and they pass into the other compartment, upon clean sand, to find their food waiting for them; and so they are shifted backwards and forwards at every meal, never remaining more than half a day upon the same floor.

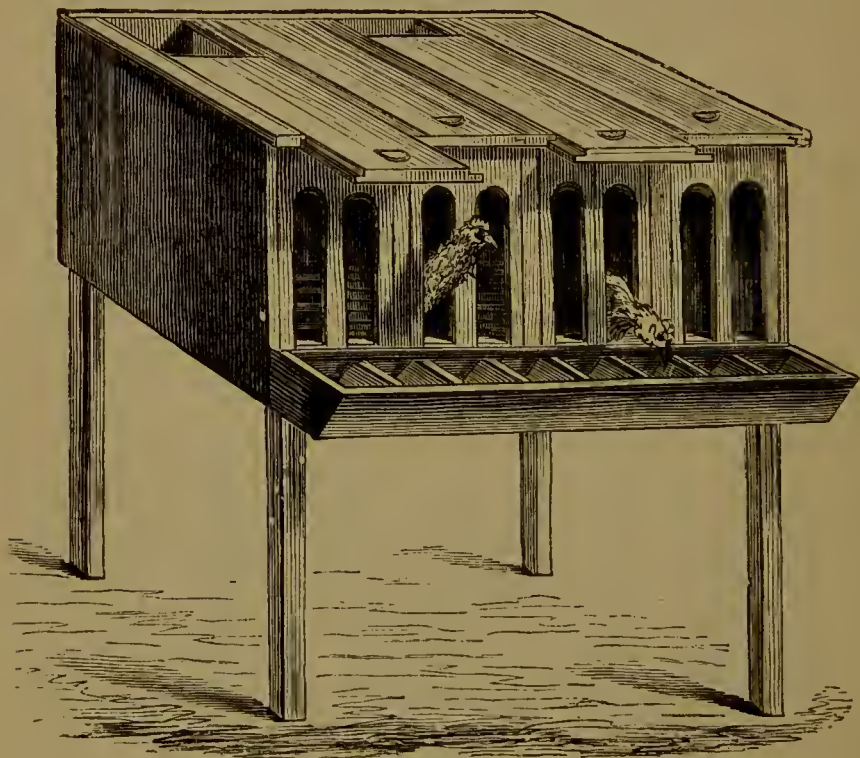


FIG. 52.—German Fattening Coop.

It is unnecessary to enter into any discussion upon the merits of the various systems of fattening, as there is but one, and that very simple, which combines cleanliness with regularity, and judgment in the selection of food. The coop should be sufficiently large for the bird to be comfortable; the floor should be partially open, that the droppings may fall through into a sanded drawer beneath; there should be

two tins fixed outside, one for the water, and the other for the food, the latter being cleansed after every meal. When a young bird is put up to fatten, its appetite should be excited by frequent changes of food; but whatever these changes may be, the foods should comprise grain-meal of good quality, milk, and fat—the last-named being preferable in the form of suet. The best meals for use are ground oats, wheat meal, barley meal, buckwheat meal, and maize meal; and if these are cooked, particularly the maize meal, the birds will fatten more rapidly. Between meals, it is a good plan to give the fattening birds a few blades of grass, green food in some form being very necessary. Some persons, either from want of knowledge or attention, are unable to fatten fowls. Those who practise fattening should retain notes of their successes, and, by weighing the birds at frequent intervals, ascertain which foods yield the best results.

The competitions, during the past few years, at the London Dairy Show and the Birmingham Cattle Show, for the prizes offered for the best lot of preserved eggs, have conclusively shown that there are two systems—and only two—which can be implicitly relied upon for the preserving of eggs for any period of time. These systems involve the use of lime and of salt. Lime affords one of the simplest possible means for the preservation of eggs. The plan to adopt is to select a vessel, preferably of earthenware, into which a number of eggs is placed; a mixture of lime and water is then poured over the eggs. The liquid may, if necessary, reach the mouth of the vessel, so that other eggs can, from time to time, be dropped in. A frequent mistake is in making the lime too thick. In this case, that which is not held in solution by the water—for water can only take up a certain quantity of lime—remains at the bottom of the vessel, and the eggs become embedded in it, and are sometimes difficult to remove without breaking.

Eggs have been packed in salt for years, with more or less success—generally less, for those who have made the attempt have fallen into the mistake of using salt in the state in which it was purchased. The great secret of preserving in salt is to use a sample which is absolutely dry, and then to keep it dry. The best plan is to use a box sufficiently large to hold fifty eggs—this is a convenient size. The bottom, as well as the lid, should be so fixed that it can be taken off without breaking. In practice, a layer of salt is laid upon the bottom, and on this the eggs are placed, upon their sides; these are then covered with another layer of salt, when a second batch of eggs is placed in the box, and so on until the top is reached. During the process of packing, the salt must be pressed down as tightly as possible, more especially round the sides; and when the box is full, before the lid is fixed, every means should be taken to pack and press the salt as closely and firmly as possible without breaking the eggs. The box should then be stored away in a perfectly dry place. When the eggs are to be used, care should be taken to remove the bottom of the box, so that the stalest eggs—*i.e.*, those first put in—may be first used. Any person may safely store eggs by either of the above systems; and, provided proper care has been taken, it will be found that the losses are trifling, and that eggs which have been kept four months are almost equal to those new-laid.

The following classification will give a fairly accurate idea of the special value of the various pure breeds of poultry known in this country. The comparative value of each breed is shown by its position in the tables.

(1.) *The Best Layers* are Black Hamburgs, Silver-spangled Hamburgs, Minorcas, Leghorns, Andalusians, Plymouth Rocks, Du Mans, Golden-pencilled Hamburgs, Houdans, Langshans, Scotch Greys, Brahmas, Cochins, Golden-spangled Hamburgs, Spanish, Dorkings, Game, Crèveœurs, La Flèche, Polish.

(2.) *The Largest Eggs are Laid by* Spanish, La Flèche, Crèveœurs, Minorcas, Andalusians, Houdans, Langshans, Plymouth Rocks, Scotch Greys, Brahmas, Dorkings, Cochins, Game, Black Hamburgs, Silver-spangled Hamburgs, Golden-spangled Hamburgs, Golden-pencilled Hamburgs, Silver-pencilled Hamburgs.

(3.) *The Best Table Fowls are* Dorkings, Indian Game, Game, La Flèche, La Bresse, Scotch Greys, Houdans, Crèveœurs, Plymouth Rocks, Brahmas, Langshans, Cochins, Minorcas, Hamburgs.

(4.) *The Best Fowls for Size and Weight are* Dorkings, Cochins, Brahmas, Langshans, Plymouth Rocks, Scotch Greys, Crèveœurs, La Flèche, Houdans, Malays, Wyandottes, Game Minorcas, Andalusians, Spanish, Polish, Leghorns, Hamburgs, Sultans, Dumpies, Courtes-Pattes, Silkies, Bantams.

(5.) *The Hardest Fowls are* Plymouth Rocks, Minorcas, Langshans, Brahmas, Indian Game, Andalusians, Scotch Greys, Cochins, Houdans, Malays, Dorkings, Game, Crèveœurs, La Flèche.

(6.) *The Best Sitters and Mothers are* Dorkings, Plymouth Rocks, Scotch Greys, Silkies, Brahmas, Cochins, Dumpies.



CHAPTER VII.

SUBURBAN POULTRY KEEPING.

THE object of this chapter is to show that private individuals, who have no more land attached to their houses than an ordinary garden, can keep a few head of poultry, not only with pleasure, but with considerable profit. We are among those who have no faith in poultry-farming pure and simple, where the food consumed is necessarily purchased, or grown for sale at a market price. Large undertakings have invariably failed, and, up to the present time, we see no prospect of success in this direction, inasmuch as the conditions are such as to preclude the possibility of the remunerative sale of either poultry or eggs. The British farmer produces articles at a cost which he is unable to appreciate or value. His hens pick up the waste invariably to be found on all farms, and the food given to them is the offal corn which, while it has a distinct value, the grower does not estimate, because he cannot send it out with his marketable grain. It is in this way that table poultry and eggs are sold below the cost of production, and this is the chief reason why neither can be produced, upon a large scale, to return the smallest profit. To some extent, the product of eggs in a small yard is similar to that of eggs produced upon the farm, for, although the private poultry-keeper is obliged to buy a certain amount of food, yet the hens, being limited in number, are partially fed upon the waste from the house, and the cost of their keep is thus very considerably diminished.

The first qualification for success in a suburban poultry-yard is a well-constructed house and run. This should be a lean-to building, erected, if possible, to face the sun; and it should be well covered in at the top and both ends. The floor should be raised from 9in. to 12in. above the garden or yard, and should be composed of broken bricks, stones, and similar rubbish, laid to a depth of some 6in., and covered with a layer of gravel and a surface of sand about 3in. in depth. This sort of floor is the first element of success, for it provides that, whatever the weather may be, the birds shall always be upon a dry soil; and, as wet and draught are almost equally destructive to the health of fowls, the hens will be sheltered from the chief evils to which they are subject. If possible, the width of the house should be from 5ft. to 6ft. Its length may be in proportion to the space at command and the wishes of the owner, but the more room the birds have the better they will thrive. One end of the building should be inclosed in front to the extent of at least 5ft.; and behind this, and next to the wall, a small roost-house should be erected, of a size in accordance with the requirements of the number of birds to be kept. This should be just large enough to provide them roosting space, and to hold two or three nests for laying purposes. This little house may be furnished with a ventilator, so fitted as to allow of its being opened to give air in summer, and, if necessary, to close in winter, keeping the birds as warm as possible. The whole front of the run should be covered with wire, from the top of the floor upwards, and wood should run along the bottom of the run, to the height of the floor. It would be necessary to have a door at one end for the entrance of the attendant, and a small door in the roost-house, to enable him to take the eggs, or to clean the house itself.

What variety of birds is to be kept depends on the taste of the owner, who may either select a breed for its beauty, for

its economical properties, or for its value for exhibition purposes; but as we are dealing with the question of profit in a suburban poultry-yard, we can only suggest that the best layers will be found in hens of a first cross between any of the following breeds—viz., the Black Hamburg, the Minorca, the Andalusian, and the La Flèche. Crosses between the Silver-spangled Hamburg, the Light Brahma, and the Houdan, also make good layers; while the Plymouth Rock and the Black Hamburg can also be strongly recommended. Among pure breeds, Minorcas and Andalusians are equal to any we know; but they should be large, vigorous birds, and not such as are bred solely for the show-pen. The Black Hamburg, the Silver-spangled Hamburg, and the Leghorn breeds furnish the next best layers, and these also should be large and vigorous. The eggs of these fowls, however, are not so big as those of the first-named varieties. From six to twelve hens and a cock may be kept in a run similar to that just described—15ft. to 20ft. long, according to the number. If birds of the heavier breeds are kept, such as Dorkings, Cochins, or Brahmas, they may occasionally be let out into the yard without any fear of their flying away, although they should be resolutely kept from flower-beds. If, however, the fowls are of the lighter breeds, such as those suggested, one wing should be clipped off. A few hours' liberty daily will be found of great benefit, enabling them to pick up insects and green food—an invariable requisite for poultry. In any case, chopped grass, cabbage leaves, and, above all, turnips or mangold-wurzel, should be supplied at such times as green food is not furnished. With regard to feeding, the best plan is to mix the scraps of the house with barley meal or fine sharps every morning. If this is given hot in cold weather it will do the birds more good, warmth being in cold weather equal to so much food. We prefer soft food in the morning, because it is available for use in the

system so much quicker than hard food; but hard food—maize for the lighter breeds, and wheat, barley, or buckwheat for the heavier breeds—may be given in the middle of the day and at night. It is questionable whether hens kept in a private yard cost more than from $\frac{1}{2}d.$ to $\frac{3}{4}d.$ each per week, if there are no more than from six to twelve, the number being arranged according to the size of the family and the probable waste available for them. For instance, maize purchased at 24s. a quarter—and it can frequently be purchased at less than this—would cost $4\frac{1}{2}d.$ a gallon. Six hens would not require more than half-a-pint per day, which would cost $2d.$ per week. If meal to a similar value is purchased for mixing with the waste from the house, the cost will be only $4d.$ per week, or less than $\frac{3}{4}d.$ per hen. We believe, however, that the house scraps of any moderate-sized family would provide at least half the food for six hens, and that the remaining food would not cost in any case more than from $3d.$ to $4d.$, always assuming that the latter is purchased wholesale.

The suburban poultry-keeper should never attempt to breed, the troubles and losses among young chickens in such cases being so severe as to detract from the profits of the yard. It is a much better policy to buy birds at the beginning of every laying season, and there being so many thousands offered for sale every week, no difficulty should be experienced in this matter. At the end of the laying season, and when the birds commence to moult, they should be indiscriminately sold, as a moulting bird in a town yard (and it is almost as bad in the country) is a regular pickpocket. We always advise the use of pullets which, preferably, should have been hatched in January or February. These may be purchased in the month of September, and kept until the following July, when they should be sold or eaten, and their places filled in the ordinary way.

Before new birds are brought into the yard the poultry-

house should be thoroughly limewashed. The run itself can always be kept clean by raking once a week, and the droppings of the fowls can be taken off the sand in this way with great facility. The birds should at all times be furnished with a drinking-fountain, into which they cannot put their feet, and which cannot be filled with dirt. There should also be provided a box filled with sand, ashes, and lime, in which they can dust themselves. This will be specially advantageous in the summer season, when a little sulphur may also be added.



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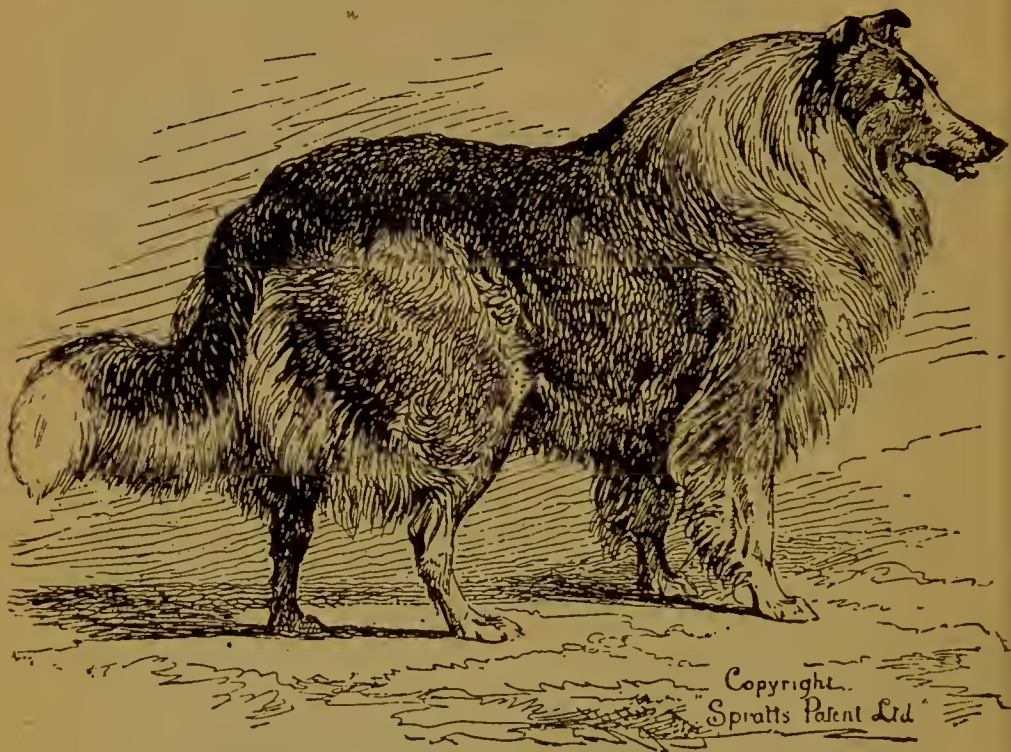
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